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MINISTRY OF FUEL AND POWER

COAL MINES ACT, 1911

Regulations and Orders
relating to Safety and
Health



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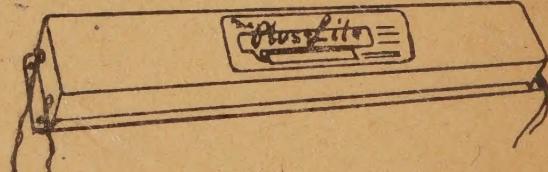
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COAL MINES ACT, 1911

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1951 EDITION

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INTRODUCTION

This volume contains, with the few exceptions indicated on page vii, all the Regulations and Orders dealing with safety and health in force on 1 July, 1951, which are of general application to mines under the Coal Mines Act, 1911. It also contains the Coal Mines (Officials and Inspections) General Regulations, 1951, most of the provisions of which came into force on 3 September.

The volume, which follows the general pattern of the previous edition (1948), is divided into four parts. Part I contains all the amendments to sections of the 1911 Act which have been made subsequently ; Part II contains the general codes of Regulations made in 1913 and 1920, followed by all other Regulations and Orders (except those relating to matters within the province of the Mining Qualifications Board) arranged in alphabetical sequence according to the subject matter ; Part III contains the Rules of the Mining Qualifications Board and other information relating to statutory certificates of qualifications ; and Part IV contains lists of approved apparatus, etc., arranged alphabetically and corrected to 1 June, 1951. In addition, a memorandum on the storage of explosives is included as an appendix.

The object of Part I is to enable readers to embody the subsequent amendments in their copies of the 1911 Act, and, to give a complete picture, the amendments included in the 1948 edition have been repeated here. On this occasion, however, a duplicate of Part I has not been included, but the amendments are printed on one side of the paper only. The arrangement of Parts II and IV provides that a reading of the Regulations and Orders is not interrupted by the lists of approvals, etc., each of which, prior to 1948, appeared following the appropriate code. So that they read continuously in the form in which they now have effect, the original Regulations and Orders include all subsequent amendments. Part III is designed mainly for mining students.

A chronological list of Regulations and Orders in force, including a few which it is not considered necessary to include in this volume, will be found on page vii, and there is a list of M. & Q. Forms in current use on page 210.

The list of types of electrical apparatus which have been certified as flameproof is too long for inclusion in Part IV ; the names of types certified each year were published as appendices to the Annual Reports of H.M. Electrical Inspector of Mines from 1931 to 1936, and since that date quarterly lists have been issued.

Ministry of Fuel and Power,
7 Millbank,
London, S.W.1.
December, 1951.

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Complete list of Regulations and Orders relating to Safety, Health and Training in Mines under the Coal Mines Act, 1911, arranged in order of date.

(Note.—Subject headings are given on the Contents pages preceding this list. The object here is to give a complete list of the official titles and statutory reference numbers of Orders (including General Regulations) within the scope of the volume which were in force on 1st July, 1951, and to enable any Order to be found if its title, date or reference number is known.

All Orders in force are included in date order, whether they have been substantially amended by subsequent Orders or merely make minor amendments to earlier ones: in either event only the consolidated Order as it now reads appears in the text. Orders which are not given in the text (because of their limited application) are marked with an asterisk and a brief note of the subject dealt with is given after their title. Orders which do no more than revoke earlier ones are not included.

For the sake of completeness, a few relevant Orders have been included which were made under authorities other than the Coal Mines Act, 1911. The authority under which an Order was made is indicated in square brackets after its title.)

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† Revoked from 1st June, 1952.

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† Revoked from 1st June, 1952.

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1948/1918	Coal Mines (Pneumatic Lighting Unit) Order of 17 August, 1948	99
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S.R. & O. OR S.I. NUMBER.	TITLE.	PAGE.
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1950/743	Coal Mines (Certificates of Competency) General Regulations of 9 May, 1950	158
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† These Regulations did not come into force until 3 September, 1951.

PART ONE

AMENDMENTS OF THE COAL MINES ACT, 1911

Since the Coal Mines Act was passed in 1911 many of its provisions have been varied or amended. To facilitate reference to current requirements, Part I of the 1948 edition of this volume included all the sections of the Act which had been so amended with the amendments incorporated in place of the original text, so as to read continuously in the form in which they now have effect. The practice is continued in this edition, and for the benefit of those persons who did not have a copy of the previous edition the amended sections included there have been repeated here. They are printed on one side of the pages only so that they can be cut out and embodied in a copy of the Act in its original form.

Most of the variations and amendments have been made under the powers conferred on the Minister by Section 86(1) of the Act. This Section was itself amended, and the Minister's powers under it extended, by the Coal Industry Act, 1949. Section 11 of the Act was extended by Section 1 of the Coal Mines Act, 1914, and that Act also made certain minor verbal amendments to the wording of Sections 42(2), 70 and 114. Section 18 was amended by the Workmen's Compensation Act, 1923, and Section 62 by the Statute Law Revision Act, 1950. Section 110 was repealed by the Workmen's Compensation Act, 1925, in which it was replaced by a provision in similar terms, but which was in turn repealed by the National Insurance (Industrial Injuries) Act, 1946, where provisions of corresponding effect continue to be included. Verbal amendments relating to the title of "deputy" were made to certain sections by the Coal Mines (Officials and Inspections) General Regulations, 1951, and these are listed at the end of this Part.

The rest of the Act remains in its original form except that under the Ministry of Fuel and Power Act, 1945, "Minister [of Fuel and Power]" should be read throughout wherever "Secretary of State" appears.

SECTION 2.

APPOINTMENT OF MANAGER.

[*Verbal amendment of 2(2) by the Coal Mines (Certificates of Competency) General Regulations, 1950, No. 743.*]

2.—(2) If any mine is worked without there being such a manager for the mine as is required by this section, the owner and agent shall each be guilty of an offence against this Act :

Provided that, if the person appointed to be manager of a mine, by reason of death, resignation, or otherwise ceases to be manager, nothing in this section shall prevent the mine being worked (for a period not exceeding four months) until a new manager is appointed, if in the

meantime a competent person holding a first-class or second-class certificate of competency under this Act valid with respect to that mine is temporarily appointed to perform the duties and exercise the powers of manager.

SECTION 3.

DAILY SUPERVISION OF MINE BY MANAGER OR UNDER-MANAGER.

[*Verbal amendments to 3(2) by the Coal Mines (Certificates of Competency) General Regulations, 1950, No. 743.*]

3.—(2) In cases where, on account of the absence of the manager or under-manager on leave or from sickness or any other temporary cause, such daily personal supervision as is required by this section cannot be exercised, arrangements shall be made for the duties of the manager or under-manager, as the case may be, in respect of daily personal supervision being performed—

(a) in the absence of the manager, by the under-manager, if any, or by a person not under the age of twenty-five years and holding a first- or second-class certificate of competency under this Act valid with respect to that mine, appointed in writing by the owner or agent ;

(b) in the absence of the under-manager, in the case of a mine for which a separate under-manager is required by this Act to be appointed by a person not under the age of twenty-five years and holding a first- or second-class certificate of competency under this Act valid with respect to that mine appointed as aforesaid :

And any person performing the duties of a manager or under-manager, whether under this or under the last preceding section, shall have the same responsibility, and shall be subject to the same liability, as the person whose duties he is performing.

SECTION 5.

QUALIFICATIONS OF MANAGERS AND UNDER-MANAGERS.

[*Verbal amendments to 5 by the Coal Mines (Certificates of Competency) General Regulations, 1950, No. 743.*]

5.—(1) A person shall not be qualified to be appointed or to be manager of a mine required to be under the control of a manager, unless he is at least twenty-five years of age and is for the time being registered as the holder of a first-class certificate of competency under this Act valid with respect to that mine.

(2) A person shall not be qualified to be appointed or to be an under-manager of a mine, or manager of a mine which is not required to be

under the control of a manager, unless he is for the time being registered as the holder of a first-class or a second-class certificate of competency under this Act valid with respect to that mine.

SECTION 7.

DESCRIPTION OF CERTIFICATES OF COMPETENCY.

[Proviso added by the Coal Mines (Certificates of Competency) General Regulations, 1950, No. 743.]

7.—There shall be two descriptions of certificates of competency under this Act (that is to say)—

- (1) first-class certificates ;
- (2) second-class certificates.

Provided that there may be certificates of either class expressed to be valid only with respect to mines of a specified class or description. Any certificate of which the validity is not so limited shall be valid for all mines.

SECTION 8.

CONSTITUTION OF MINING QUALIFICATIONS BOARD.

[New provisions substituted for 8(1) by the Coal Mines (Mining Qualifications Board) General Regulations, 1950, No. 77.]

8.—(1) For the purpose of ascertaining the fitness of applicants for certificates of competency under this Act, and of exercising and performing any other powers and duties conferred upon them by this Act or by regulations made hereunder, there shall be a Mining Qualifications Board consisting of a chairman and seven other members appointed by the Minister of Fuel and Power.

The members of the Board shall include persons appearing to the Minister to have experience respectively of mining, of education and of administration, but the Board shall have the power to act notwithstanding a vacancy among the members thereof.

The members of the Board shall be appointed on such conditions and for such term, not exceeding five years, as may be determined by the Minister, but any appointment may be terminated by the Minister at any time. A retiring member shall be eligible for reappointment.

SECTION 9.

CERTIFICATES OF COMPETENCY AND OTHER QUALIFICATIONS.

[New provisions substituted for 9(1) and (2) by the Coal Mines (Mining Qualifications Board) General Regulations, 1950, No. 77. New pro-

visions substituted for 9(6) and additional subsection 9(7) inserted by the Coal Mines (Mining Examinations and Certificates of Competency) Order, 1942, No. 1507. Amendment to 9(1) made by the Coal Mines (Officials and Inspections) General Regulations, 1951, No. 848.]

9.—(1) Rules made by the Mining Qualifications Board with the approval of the Minister of Fuel and Power shall prescribe the qualifications to be possessed by applicants for certificates of competency under this Act and for any other certificates of qualifications required by this Act or by regulations made under this Act to be held by persons concerned with the management of mines or otherwise acting in or in connection with the carrying on of mining operations.

Such rules shall require an applicant for a certificate of competency—

(a) to have had such practical experience in mining (either wholly in the United Kingdom or partly in the United Kingdom and partly elsewhere) as may be specified in the rules, which experience shall be for a period of not less than five years, subject to such reduction in respect of any qualification or experience (including performance of national service) acquired by the applicant as the Board may determine having regard to any directions given to them by the Minister,

(b) to have attained such standard of general education as is specified in the rules, and to be of good character.

Such rules shall with respect to applicants for a deputy's certificate comply with the provisions of subsection (4) of section fifteen of this Act.

(2) Rules made by the Board with the approval of the Minister shall specify the methods by which applicants for certificates may satisfy the Board that they possess the qualifications required, which methods may include the possession of degrees or diplomas or other qualifications specified in the rules, attendance at courses of instruction so specified and the passing of examinations held by the Board. In relation to examinations held by the Board the rules shall provide for the nature of the examinations and the publication of the times and places at which they are held, and may provide for other matters relating thereto, including the ages at which applicants may take them.

(6) For the purposes of this section, unless the context otherwise requires, the following expressions have the meanings hereby respectively assigned to them, that is to say :—

“ Approved diploma ” means a diploma (approved by the Minister) involving scientific and mining training awarded by a University or by an Institution.

“ Approved degree ” means a degree (approved by the Minister) involving scientific and mining training awarded by a University.

“ National Service ” means whole-time service performed in any one or more of the following cases, that is to say :—

(1) as a militiaman in pursuance of the provisions of the Military Training Act, 1939 (2 & 3 Geo. 6. c. 25);

(2) as a member of His Majesty's regular forces or of His Majesty's reserve and auxiliary forces during the period of six months immediately prior to the 3rd day of September, 1939;

(3) either wholly during or partly during and partly after the conclusion of any war in which His Majesty has been, is or may be engaged after the 2nd day of September, 1939:—

(a) in any of the armed forces of the Crown; or
(b) in civil defence duties; or

(c) in any duties which in the opinion of the Board for Mining Examinations were essential duties and which in their opinion it was expedient in the national interests for the applicant to perform;

whether wholly performed in any one of such forces or duties or partly in one and partly in another; and

“His Majesty's regular forces” and “His Majesty's reserve and auxiliary forces” have the meanings respectively assigned to them by the Military Training Act, 1939; and

“Civil Defence duties” means duties the performance of which a local authority is or was required or authorised to organise in the discharge of functions conferred or imposed on it by the Air-Raid Precautions Act, 1937 (1 & 2 Geo. 6. c. 6), or the Civil Defence Act, 1939 (2 & 3 Geo. 6. c. 31), or Part II of the Defence (General) Regulations, 1939, or any functions relating to the extinction of fires whether exercisable under those Acts or that part of those Regulations or otherwise; and “essential duties” means duties essential for the defence of the realm or the prosecution of the war or essential to the life of the community.

(7) Any approval for the purposes of this section by the Minister may be subject to such conditions as he thinks fit and he may revoke or vary any approval.

SECTION 10.

GRANT OF CERTIFICATES OF COMPETENCY.

[*New provisions substituted for 10(1) by the Coal Mines (Mining Qualifications Board) General Regulations, 1950, No. 77. Additional subsection 10(4) inserted by the Coal Mines (Mining Examinations and Certificates of Competency) Order, 1942, No. 1507, and amended verbally by the 1950 Regulations.*]

10.—(1) The Minister of Fuel and Power shall deliver to every applicant who is reported by the Mining Qualifications Board to have passed the examination satisfactorily or to possess degrees or diplomas or other qualifications exempting him therefrom such a certificate of competency as the case requires ; so, however, that in the case of any such applicant—

- (a) who shall not have attained the age of twenty-three years at the date when he is so reported ; or
- (b) who has not had such practical experience as is required by virtue of paragraph (a) of subsection (1) of section nine of this Act ;

such delivery shall be postponed, and the applicant shall neither be qualified to hold nor be registered as the holder of such a certificate until he shall have attained that age and shall have had such experience.

(4) The Minister may, if he thinks fit, vary in any certificate of competency the name of the holder on proof to the satisfaction of the Minister that the name is incorrectly stated therein or that such person has changed his name or is known by a name different from that mentioned in the certificate.

SECTION 14.

APPOINTMENT AND DUTIES OF DEPUTIES.

[New subsections (1), (2), (2A), (2B), (3) and (3A) substituted for subsections (1), (2) and (3) by the Coal Mines (Officials and Inspections) General Regulations, 1951, No. 848.]

14.—(1) For every mine there shall be appointed by the manager in writing one or more competent persons (in this Act referred to as “deputies”), each of whom shall, in the district assigned to him, during his shift—

- (a) be in charge of all workmen for the time being in the district, and of all operations in progress therein ; and
- (b) make such inspections and carry out such other duties, with regard to the presence of gas, ventilation, support of roofs and sides and general safety (including the health of persons working in the district), as are required by this Act and the regulations of the mine.

(2) A deputy shall be required to devote his whole time to the duties specified in the foregoing subsection :

Provided that, subject to the provisions of the next following subsection, the said requirement shall not—

- (a) apply in relation to any district—
 - (i) in any mine of stratified ironstone ;

- (ii) in any mine exempted therefrom by the inspector of the division on the ground of the special circumstances of that mine ;
- (iii) in a small mine, if the number of persons at work in that district during the shift concerned does not exceed ten ; or
- (iv) in a mine to which none of the foregoing sub-paragraphs of this proviso apply, if the number of persons at work in that district during the shift concerned does not exceed five ; or

(b) prevent any deputy in any mine being employed in firing shots.

(2A) No duty shall be assigned to any deputy by virtue of the proviso to the last foregoing subsection, if performance of the duty in question would prevent that deputy carrying out his duties relating to safety in a thorough manner, or if the inspector of the division has required that he shall not perform it on the ground that it is likely to prevent him so carrying out the said duties.

(2B) No deputy shall at any time perform any duty himself, or knowingly permit any work by any workman under his charge, if the same would prevent or delay the due performance of any duty or work necessary for safety.

(3) The manager shall define the limits of each district in a mine to be in the charge of a deputy (in this Act referred to as a "deputy's district"), so that—

- (a) every place in the mine in which mineral or stone is being worked is included within the limits of some such district ; and
- (b) no such district is of such a size as may prevent the deputy concerned from carrying out all his duties in a thorough manner, or from making the inspection required by section sixty-four of this Act (if not interrupted) within a period of one and a half hours :

Provided that nothing in paragraph (a) shall require any place to be included in any district by reason only that mineral or stone is being worked for the purpose of repairing, restoring or enlarging roads, or of preparing accommodation required for the working of the mine.

(3A) The inspector of the division may object to the limits of any deputy's district as defined by the manager, on the ground of failure to comply with the provisions of paragraph (a) or (b) of the last foregoing subsection ; and if, in any such case, the manager does not define other limits for the said district to the satisfaction of the inspector, the matter shall be determined in manner provided by this Act for settling disputes.

SECTION 15.*

QUALIFICATIONS OF DEPUTIES.

[*New section substituted by the Coal Mines (Officials and Inspections) General Regulations, 1951, No. 848.*]

15.—(1) Subject to the provisions of this section, no person shall be qualified to be appointed or to be a deputy unless—

(a) he is the holder—

- (i) of a first- or second-class certificate of competency under this Act ; or
- (ii) of a deputy's certificate granted to him by the Minister of Fuel and Power, after receipt of a report by the Mining Qualifications Board that he possesses the qualifications required under this Act ; and

(b) he has within the last preceding five years obtained certificates, granted as respectively prescribed in rules made by the Board aforesaid, that he was then—

- (i) able to make accurate tests for inflammable gas (so far as is practicable with a flame safety lamp), and able in so far as concerned his hearing to carry out his duties efficiently ; and
- (ii) proficient in first aid :

Provided that, in the case of a deputy in a mine of stratified iron-stone (not being a mine in the Cleveland district or a mine in which safety lamps are required to be used), no certificate in pursuance of sub-paragraph (i) of paragraph (b) of this subsection shall be required.

(2) Paragraph (a) of the foregoing subsection shall not apply in the case of any person who is, during the period beginning on the first day of June and ending on the thirty-first day of August, nineteen hundred and fifty-two, certified by the manager of a mine to be a person who at some time before the said first day of June had been appointed in writing to perform, and had in fact performed, the duties of a deputy in that mine, and who immediately before that day was fully qualified to perform them.

(3) If, in the case of a small mine, the number of persons who may be appointed deputy is less, by reason of sickness, holidays or other temporary cause, than the number then requisite for full working in the mine, one or more competent persons may be appointed by the manager in writing to perform the duties of a deputy for a period not exceeding three months, so however that notice of any such appointment shall within seven days be sent to the inspector of the division.

(4) Rules made by the Mining Qualifications Board under section

* This new section does not become operative until 1 June, 1952.

nine of this Act shall require an applicant for a deputy's certificate either—

(a) to have—

- (i) reached the qualifying standard in a written examination covering the elementary principles of safe mining practice (including elementary mining science) and the statutory requirements relating to a deputy's duties ;
- (ii) reached the qualifying standard in a practical test of the ability of the applicant to perform the statutory duties of a deputy ;
- (iii) had not less than four years' practical experience below ground in a mine, of which not less than eighteen months was at the face of the workings ; and
- (iv) attained an age not less than twenty-three years ; or

(b) to have—

- (i) reached the qualifying standard in the practical test specified in sub-paragraph (ii) of the foregoing paragraph ;
- (ii) had not less than five years' practical experience below ground in a mine, of which not less than two years was at the face of the workings ; and
- (iii) attained an age not less than twenty-five years :

Provided that the rules may provide for the reduction by the Board of any required period of practical experience, in the case of any applicant possessing special qualifications or experience (including the performance of national service), so however that the practical experience as so reduced shall not be less than three years below ground in a mine, of which not less than one year was at the face of the workings.

(5) In the case of any person obtaining a certificate in pursuance of paragraph (b) of subsection (1) of this section while he is employed as a deputy, the expense of obtaining that certificate shall be borne by the owner of the mine.

(6) A certificate made for the purposes of subsection (2) of this section shall be on a form provided for the purpose by the Minister, and shall, within fourteen days of being made, be authenticated by the owner of the mine, or by a representative of the owner superior to the manager.

(7) The certificates required under this section relating to every deputy employed at any mine (including any certificate made for the purposes of subsection (2)) shall be kept at the office at the mine, and shall be produced on demand to any inspector.

SECTION 18.

RETURNS BY OWNER, AGENT OR MANAGER.

[New provision substituted for paragraph (b) of subsection (1) by the Workmen's Compensation Act, 1923.]

18.—(1) On or before the twenty-first day of January in every year, the owner, agent, or manager of every mine shall send to the inspector of the division a correct return, specifying, with respect to the year ending on the preceding thirty-first day of December—

(a) the particulars contained in the form in the First Schedule to this Act, or in such other form as may, from time to time, be prescribed in lieu of that form ;

(b) such particulars as may be prescribed of all accidents which occurred in or about the mine during the year to which the return relates and disabled, for more than three days, any person employed in or about the mine from earning full wages at the work at which he was employed ;

(c) such other particulars as may be prescribed as to the supply and maintenance with respect to the mine of appliances for use in rescue work and ambulance appliances, the formation and training of rescue brigades, and the training of men in ambulance work ; and

(d) such other particulars as the Minister may prescribe by order made in like manner and subject to the like procedure as general regulations under this Act.

SECTION 32.

USE OF SAFETY LAMPS IN CERTAIN PLACES.

[New section substituted by the Coal Mines (Lighting and Contraband) General Regulations, 1949, No. 924.]

32.—(1) No lamp or light other than a locked safety lamp or such other means of lighting as is permitted by the regulations of the mine shall be allowed or used in any mine—

(a) in any part of which safety lamps were used or required to be used, otherwise than as a temporary precaution, immediately before the first day of January, nineteen hundred and forty-nine, or have been so used on or after that date,

(b) in any part of which any explosion or ignition of inflammable gas, whether or not causing personal injury, has occurred on or after that date,

(c) newly opened after the said date, or

(d) in respect of which the Inspector of the Division has, not less than one month previously, given notice to the owner, agent, or manager that safety lamps should be installed,

unless exemption is granted by the Inspector of the Division on account of the special character of the mine, or pending the provision of facilities required by virtue of the provisions of this subsection.

(2) A notice under paragraph (d) of the last subsection shall not be unreasonably given and if the owner, agent, or manager disputes the reasonableness thereof the matter shall be determined in manner provided by this Act for settling disputes.

(3) In this section the use of safety lamps "as a temporary precaution" means the occasional or intermittent use of such lamps by workmen employed in places in which the use of naked lights might be dangerous.

SECTION 33.

CONSTRUCTION OF SAFETY LAMPS.

[New provision added at end, by the Coal Mines General Regulations (Safety Lamps), 1927, No. 1155.]

33.—Wherever safety lamps are required by this Act or the regulations of the mine to be used, no safety lamp shall, after the first day of January, nineteen hundred and thirteen, be used by any person employed in the mine, unless it is provided by the owner of the mine, and is of a type for the time being approved, as respects the class of mines to which the mine belongs, by the Minister.

As respects any class of mines, or generally, the Minister may approve any type of safety lamp either absolutely or subject to such conditions as may be prescribed.

SECTION 34.

EXAMINATION OF SAFETY LAMPS.

[New paragraphs (iii), (iv), (v) and (vi) substituted for paragraphs (iii) and (iv) of 34(1), by the Coal Mines General Regulations (Safety Lamps), 1927, No. 1155.]

34.—(1) In any mine or part of a mine in which safety lamps are required by this Act or the regulations of the mine to be used—

(i) A safety lamp shall not be used, unless it has, since last in use, been thoroughly examined at the surface by a competent person appointed in writing by the manager for the purpose and found by him in safe working order and securely locked, and a record shall be kept of the men to whom the several lamps are given out :

- (ii) A competent person appointed in writing by the manager for the purpose shall also examine every lamp on its being returned, and, if on such an examination any lamp is found to be damaged, he shall record the nature of the damage in a book to be kept at the mine for the purpose, and the damage shall be deemed to have been due to the neglect or default of the person to whom the lamp was given out, unless he proves that the damage was due to no fault of his own and that he immediately gave notice of the damage to the deputy in charge of the district or some other official of the mine appointed in writing by the manager for the purpose :
- (iii) Subject as hereinafter provided, no safety lamp shall be unlocked or opened, and no person shall use or have in his possession any contrivance for unlocking or opening any safety lamp :

Provided that—

In any mine of stratified ironstone in the Cleveland district an authorised person (that is to say, a competent person appointed in writing by the manager for the purpose of relighting safety lamps) may use and have in his possession a contrivance for unlocking or opening safety lamps, and may unlock, open and relight any safety lamp at an appointed lamp station (that is to say, a lamp station appointed by the manager, which shall not be in a return airway) :

- (iv) No flame safety lamp shall be relighted except by an authorised person at an appointed lamp station, and no contrivance for relighting any flame safety lamp shall be kept at any place except an appointed lamp station or be in the possession or control of any person other than an authorised person :

Provided that this paragraph shall not apply in respect of any flame safety lamp with a relighting device of a type approved by the Minister for use otherwise than by an authorised person at an appointed lamp station, if and so long as the prescribed conditions are complied with :

- (v) An authorised person shall not relight any flame safety lamp unless after examining it he finds it to be undamaged, and after relighting any safety lamp shall not allow it to be used or to remain lighted unless after again examining it he has found it to be securely locked and considers it to be in safe working order :
- (vi) No part of a safety lamp shall be removed by any person whilst the lamp is in ordinary use.

SECTION 35.

PROHIBITION AGAINST POSSESSION OF CERTAIN ARTICLES.

[New provisions substituted for 35(1) and 35(2), additional subsection 35(5) inserted and verbal amendment of 35(3) made by the Coal Mines (Lighting and Contraband) General Regulations, 1949, No. 924.]

35.—(1) No person in any mine in which safety lamps are required by this Act or the regulations of the mine to be used and no person in any mine to whom a safety lamp is issued for use as a temporary precaution shall have in his possession any article prohibited under this section.

(2) The manager of a mine shall, for the purpose of ensuring that the last preceding subsection is complied with, cause either all the persons employed in that mine to whom that subsection applies, or such of them as may be selected on a system approved by the Inspector of the Division, to be searched in the prescribed manner immediately before or as soon as practicable after entering the mine and may for that purpose cause any person to be so searched at any time at which that subsection applies to him.

(3) No person shall search any workman in pursuance of this section unless he has previously given an opportunity to some two workmen employed in the mine to search himself, and no article prohibited under this section has been found on him.

(5) In this section :—

“ article prohibited under this section ” means any cigar, cigarette, pipe or contrivance for smoking, and any match or other article that produces or is capable of producing a light, flame or spark, except an article of a description authorised to be taken below ground by this Act or by the Minister of Fuel and Power or the Inspector of the Division ;

“ temporary precaution ” has the meaning assigned thereto by section thirty-two of this Act.

SECTION 40.

PROVISION OF WINDING APPARATUS.

[New provisions substituted for 40(2) and 40(10) by the Coal Mines General Regulations (Winding and Haulage), 1937, No. 143, and for 40(5) by the Coal Mines (Winding and Haulage) General Regulations, 1948, No. 302.]

40.—(2) Where the apparatus ordinarily used for raising or lowering persons to or from the surface is worked by mechanical power it shall, if the shaft is vertical, be provided with detaching gear for each cage ; and if the maximum speed of winding can exceed 12 feet per second shall also be provided with an effective automatic contrivance to

opened before the commencement of this Act, there shall be provided two main airways, which shall be of such size and shall be maintained in such condition as to afford a ready means of ingress to and egress from the workings.

(4) Where, in the case of any mine or seam newly opened after the passing of this Act, the air-current in the main return airway is found normally to contain more than one half per cent. of inflammable gas, that airway shall not (except with the consent of the Minister of Fuel and Power or for the purpose of removing any coal gotten in the operation of enlarging or repairing the airway, or within a distance of three hundred yards from the shaft) be used for the haulage of coal.

For the purpose of this provision, the average percentage of inflammable gas found in six samples taken by an inspector in the air-current at intervals of not less than a fortnight shall be deemed to be the percentage normally contained in the air-current.

SECTION 44.

PROVISION OF REFUGE HOLES.

[New provisions substituted for 44(1) by the Coal Mines (Winding and Haulage) General Regulations, 1948, No. 302.]

44.—(1) Every haulage road on which the haulage is worked by gravity or mechanical power shall be provided with sufficient refuge holes—

(a) at intervals of not more than ten yards ; or

(b) if the gradient does not exceed one in twenty, and either there is provided on one side of the road a clear space of at least two feet in width between the tubs and that side of the road or the rate of haulage is not more than three miles an hour, at intervals of not more than twenty yards ; or

(c) as may be fixed by the regulations of the mine.

SECTION 45.

DIMENSIONS OF TRAVELLING ROADS.

[Verbal amendments of 45(2) by the Coal Mines General Regulations, 1922, No. 113.]

45.—(2) Every road on which a horse or other animal is used underground or by which it has to pass shall be of sufficient dimensions to allow the horse or other animal to pass without rubbing itself or its harness against the roof or sides or the bars or props supporting the roof or sides.

SECTION 50.

SYSTEMATIC SUPPORT OF ROOF AND SIDES.

[*Verbal amendments in subsections (1), (2), (3) and (7) and new subsections (4), (4A), (4B), (4C), (4D) and (4E) substituted for subsection (4), by the Coal Mines (Support of Roof and Sides) General Regulations, 1947, No. 973. The Regulations also define certain terms as indicated in footnote*]*]

50.—(1) Where props or props and bars or chocks are used to support the roof at the working face, the roof under which any work of getting coal or filling tubs is carried on shall be systematically and adequately supported, and the props or chocks shall be set at such regular intervals and in such manner as may be specified in the Support Rules.

(2) Holing props or sprags shall be set as soon as practicable, and shall be set at such regular intervals and in such manner as may be specified in the Support Rules, and shall not be removed until the coal is about to be taken down and before the roof supports (if any) have been advanced in the manner specified in such Rules.

(3) In all parts of a roadway in which sets or trains consisting of three or more tubs are coupled or uncoupled, the roof and sides shall be systematically and adequately supported and in such parts and in all other parts of the roadway the roof or sides of which require to be supported, if props or bars are used as supports, such supports shall be set at such regular intervals and in such manner as may be specified in the Support Rules.

(4) The manager shall make rules (in this Act referred to as the "Support Rules") specifying in relation to each seam of the mine,

* "bar" includes girder;

"face" means, in relation to a seam, the exposed surface from which coal or other mineral is won; and means, in relation to a stone drift or a ripping, the exposed surface from which the stone is worked;

"face working" means, in relation to a face at which supports are systematically withdrawn, all that part of the mine between the face and the front line of the packs (if any) or the last row of supports for the time being maintained, whichever is the farther from the face; and means, in relation to a face at which supports are not systematically withdrawn, all that part of the mine between the face and a line parallel to it and twelve feet distant from it;

"ripping" means a place where material is worked from the roof or floor for the purpose of increasing the height of a road or of obtaining material for packing;

"ripping lip" means the edge where the face of a ripping joins the former level of the roof or floor;

"road" means any part of a passage which is maintained in connection with the working of the mine, except that part which is within ten yards of the face;

"roadhead" means, in relation to a road which leads to a face of a seam, all that part of the mine between the end of the road nearest the face and that face and of the same width throughout as that roadend;

"waste" means the space outside any face working, road or roadhead and not occupied by packs, from which the coal or other material has been extracted.

particulars of the system or systems of controlling and supporting the roof and sides to be carried out in connection with the face workings, the roadheads and the roads, respectively, and shall illustrate those particulars by such plans and sections or diagrams as are necessary to make them clearly and easily understood by the persons engaged in carrying out any such system.

(4A) The manager shall also specify in the Support Rules the maximum intervals to be observed :—

- (a) between the supports on roads where required ;
- (b) between the holing props or sprags ; so however that the interval between such props or sprags shall not exceed six feet ;
- (c) in respect of bars or props in a face working or roadhead :—
 - (i) between each row of props ;
 - (ii) between adjacent props in the same row ;
 - (iii) between adjacent bars in the same row ;
 - (iv) between the front row of props and the face at any part of the face where filling has been completed ;
 - (v) between the front props and the temporary supports set in advance thereof ;

so however that such intervals, unless the Inspector of the Division otherwise authorises in writing, shall not exceed :—

- (vi) four feet between each row of props, or six feet if bars are used at distances not exceeding four feet between adjacent bars in the same row ;
- (vii) four feet between adjacent props in the same row, and, if bars are required to be used by these Regulations, between adjacent bars in the same row ;
- (viii) three feet between the front row of props and the face at any part of the face where filling has been completed ;
- (ix) three feet between front props and the temporary supports set in advance thereof ;

Provided that the provisions of sub-paragraphs (vi) and (vii) of this paragraph shall not apply in respect of roadheads in workings other than longwall workings ; and

Provided also that in places where the use of machinery for cutting or loading makes it temporarily impracticable to comply fully with the requirements of the provisions of sub-paragraphs (viii) and (ix) of this paragraph, those requirements shall be modified to the extent that supports may be removed, over such limited distance as is necessary, from the path of travel of the machine, if supports complying fully with those requirements are set as soon as practicable after the machine has passed ; and

Provided also that if the manager objects to a decision of the

Inspector as aforesaid the matter shall be settled in manner provided by this Act for settling disputes ;

(d) in respect of chocks set systematically in rows in a face working or roadhead :—

- (i) between each row of chocks ;
- (ii) between adjacent chocks in the same row ;
- (iii) between the front row of chocks and the face ;
- (iv) in advance of the front chocks at which temporary supports are to be set.

(4B) The manager shall also, in connexion with such particulars as aforesaid as relate to the roadhead, specify in the Support Rules the method of supporting :—

- (a) the roof between the face and the ripping lip, if any, farthest from the face ;
- (b) the roof between the ripping lip, if any, farthest from the face and the end of the roadhead ;
- (c) the face or faces of rippings ;
- (d) the roof newly exposed by ripping.

(4C) Where it is part of the system of work to withdraw the supports from the waste or from under the roof adjoining the waste, the manager shall also specify in the Support Rules the system of withdrawing the supports and the intervals between the supports which are to be set and maintained with a view to preventing the roof breaking down over the face working or in any place other than in the waste.

(4D) A copy of so much of the Support Rules as applies to each district of the mine shall be :—

- (a) posted at the entrance thereto in such a position that it can easily be read by every person concerned ;
- (b) supplied to the deputy in charge of the district.

(4E) The Support Rules shall be kept at the office at the mine and a copy thereof purporting to be certified by the manager for the time being as a true copy shall be received in evidence without further proof.

(7) Nothing in this section shall prevent a workman from setting supports in his working place at more frequent intervals than those specified in the Support Rules where necessary for safety.

SECTION 58.

RESTRICTION ON USE OF INTERNAL COMBUSTION ENGINES.

[*New section substituted by the Coal Mines (Locomotives) General Regulations, 1949, No. 530.*]

58.—(1) No locomotive or other vehicle for which motive power is

supplied by an internal combustion engine, compressed air or electric power shall be used below ground in any mine otherwise than in accordance with the regulations of the mine.

(2) Save as provided in the foregoing subsection, no internal combustion engine shall be used below ground in any mine except with the consent of the Minister of Fuel and Power and subject to any conditions imposed by him.

SECTION 62.

PREVENTION OF COAL DUST.

[Deletion in 62(2) by Statute Law Revision Act, 1950 : new provision substituted for 62(3) by the Coal Mines General Regulations (Precautions against Coal Dust), 1939, No. 1803.]

62.—(2) the tubs shall be so constructed and maintained as to prevent, as far as practicable, coal dust escaping through the sides, ends, or floor of the tubs ;

(3) the dust on the floor of every travelling road and conveyor road (including the space beneath the conveyor) shall be systematically cleared so as to prevent all accumulations thereof so far as is reasonably practicable, or shall be systematically treated in a manner approved by the Minister so as to consolidate it and render it indispersable.

SECTION 63.

MEETING STATIONS.

[New section substituted by the Coal Mines (Officials and Inspections) General Regulations, 1951, No. 848.]

63.—(1) For the purposes of the pre-shift inspections hereinafter mentioned, the manager shall appoint a station at one entrance to each deputy's district (in this Act, in relation to the district concerned, referred to as the " meeting-station ") ; and no workman shall pass beyond the meeting-station of, or enter, any such district unless it has, within the previous eight hours, been examined in pursuance of the next following section, and has been reported to be safe :

Provided that nothing in this subsection shall prevent any deputy being accompanied during any such inspection by one competent workman as an assistant.

(2) The inspector of the division may object to the situation of any meeting-station appointed by the manager, on the ground that as so situate the station does not provide adequately for the safety of workmen ; and, if, in any such case, the manager does not appoint another meeting-station to the satisfaction of the inspector, the matter shall be determined in manner provided by this Act for settling disputes.

SECTION 64.

PRE-SHIFT INSPECTIONS.

[*New section substituted by the Coal Mines (Officials and Inspections) General Regulations, 1951, No. 848.*]

64.—(1) Within the two hours immediately before the commencement of work in any shift during which workmen are to enter any deputy's district, the deputy to whom that district is assigned for that shift, or the deputy to whom it was assigned for the last preceding shift, shall himself ascertain, by inspection of every part of it which is required to be ventilated, the condition of every such part in so far as the presence of gas, ventilation, state of roof and sides and general safety are concerned :

Provided that, while there are workmen continuously in any district, inspections of that district shall not be required to be made under this section more frequently than once in every eight hours.

(2) An inspection required to be made under this section is in this Act referred to as a "pre-shift inspection".

(3) In mines of stratified ironstone, a pre-shift inspection or an inspection under section sixty-five of this Act may, with the consent in writing of the inspector of the division, be made by two deputies together (one of them being the deputy to whom the district is assigned). And, in relation to any inspection so made, the provisions of this section and of the said section sixty-five shall apply as if references to the deputy concerned, or to the deputy in charge of the district, were references to the two deputies making the inspection.

(4) Except in mines of stratified ironstone (not being mines in the Cleveland district, or mines in which safety lamps are required to be used), a deputy making any pre-shift inspection shall have with him, locked, a flame safety lamp and an electric safety lamp, or one safety lamp combining the two, each such lamp being of a type approved* for the purpose by the Minister of Fuel and Power, and no other light shall be used by him during the inspection.

No light shall be used by the workman (if any) accompanying the deputy unless it is a safety lamp of a type approved for general use.

(5) On the completion of each pre-shift inspection, the deputy concerned shall—

(a) without delay, record in a book to be kept at the mine for the purpose a full and accurate report thereof (to be known for the purposes of this Act as his "pre-shift report"), which shall, except in so far as it consists of printed matter, be in his handwriting, and shall be signed by him, specifying—

(i) the condition of roof and sides, and of the ventilation, in the district ; and

* See footnote on page 74.

- (ii) whether or not there have been found therein any noxious or inflammable gas, or other sources of danger, and, if found, particulars of the same ; and
- (b) cause all requisite instructions relating to safety to be given at the meeting-station to the workmen who are to enter the district.

SECTION 65.

INSPECTIONS DURING SHIFTS.

[New section substituted by the Coal Mines (Officials and Inspections) General Regulations, 1951, No. 848.]

65.—(1) Each deputy's district in which there are workmen at work shall, subject to the provisions of subsection (3) of section sixty-four of this Act, be inspected by the deputy in charge of it at least twice during each shift ; and—

(a) no place where workmen are at work shall remain un-inspected for more than four hours ;

(b) if any part of the district remains without any workman being at work in it for two hours or more after the pre-shift inspection, no workman shall enter that part unless—

(i) the part has been inspected under this section within the previous two hours ; and

(ii) the workman has received from the deputy concerned all requisite instructions relating to safety.

(2) In cases where, by virtue of the proviso to subsection (1) of the said section sixty-four, there has with respect to the shift of any workmen been no pre-shift inspection, references in the foregoing subsection to a shift shall be construed as references to a period of eight hours immediately following the completion of a pre-shift inspection.

(3) An inspection under this section shall be similar to a pre-shift inspection, save that—

(a) it need not extend to any development working which the manager has caused to be marked with a notice as a working not for the time being to be continued ; and

(b) a report thereof (other than any general report made by the deputy concerned on the performance of his duties) shall not be required.

(4) An inspection made under this section may also be a pre-shift inspection of the district for the purposes of the succeeding shift, so however that, in any such case, nothing in the last foregoing subsection shall affect the requirements of section sixty-four.

SECTION 66.

EXAMINATION OF MACHINERY, ROADS, AIRWAYS, ETC.

[Section 66 renumbered 66(1) with verbal amendments, and additional subsections (2), (3) and (4) inserted by the Coal Mines (Officials and Inspections) General Regulations, 1951, No. 848.]

66.—(1) Competent persons appointed by the manager for the purpose, shall—

(a) once at least in every twenty-four hours, examine thoroughly the state of the external parts of the machinery, the state of the guides in the shafts, and the state of the head gear, ropes, chains, cages, and other similar appliances of the mine which are in actual use for the purpose of raising or lowering persons in a mine ; and

(b) once at least in every week, examine thoroughly the state of all other machinery, gear, and other appliances of the mine which are actually in use, whether above ground or below ground ; and

(c) once at least in every week, examine thoroughly the state of the shafts in which persons are lowered or raised ;

and shall make a full and accurate report of the result of the examination, and every such report shall be recorded without delay in a book to be kept at the mine for the purpose and accessible to the workmen, and shall be signed by the person who made the examination.

(2) Inspections by competent persons appointed by the manager for the purpose (each being qualified under this Act to be a deputy) shall be made—

(a) to the extent necessary for a thorough examination of its condition, of—

(i) every working place specified in the next following subsection (not being within the limits of any deputy's district), at the beginning of each shift during which any workman is to be at the working place, and, in addition, at least once during each such shift ;

(ii) every place where persons regularly pass (not being within the limits of any deputy's district), at intervals not exceeding twenty-four hours ; and

(iii) every airway, at intervals not exceeding seven days ; and

(b) to the extent necessary to ensure that it is fit and safe for travelling, of every road or part of a road not otherwise subject to inspection under this subsection, at intervals not exceeding seven days :

Provided that the requirement in this subsection that each competent person shall be qualified under this Act to be a deputy shall not have effect until the first day of December, nineteen hundred and fifty-four.

(3) The working places referred to in sub-paragraph (i) of paragraph (a) of the last foregoing subsection are all places at which any workman is—

- (a) working mineral or stone for the purpose of repairing, restoring or enlarging roads, or of preparing accommodation required for the working of the mine ;
- (b) withdrawing equipment, plant or supports in preparation for the abandonment of the place concerned ; or
- (c) working where persons do not regularly pass.

(4) The provisions of subsection (1) regarding reports shall with the requisite modifications apply in relation to inspections under subsection (2) of this section, as they apply in relation to examinations under subsection (1).

SECTION 70.

PROVISION OF MEANS FOR EXTINGUISHING FIRE.

[Verbal amendment by the Coal Mines Act, 1914.]

70.—At all parts of a mine where timber, grease, or other inflammable material is stored, and at all insets where timber is used for the construction of the staging, and at every pithead, engine-room, and boiler gallery in the construction of which timber is used, adequate means of extinguishing fire shall be provided.

SECTION 75.

PENALTIES FOR NON-COMPLIANCE WITH PROVISIONS AS TO SAFETY.

[Verbal amendments by the Coal Mines (Support of Roof and Sides) General Regulations, 1947, No. 973.]

75.—Any person who contravenes or does not comply with any of the provisions of this Part of this Act or of the Support Rules shall be guilty of an offence against this Act, and, in the event of any contravention of or non-compliance with any of the provisions of this Part of this Act or of the Support Rules by any person whomsoever, the owner, agent, and manager of the mine shall each be guilty of an offence against this Act, unless he proves that he had taken all reasonable means by publishing and to the best of his power enforcing those provisions to prevent that contravention or non-compliance.

SECTION 86.

GENERAL REGULATIONS.

[*Verbal amendments of 86(1) and (2) by S. 11 of the Coal Industry Act, 1949.**]

86.—(1) The Minister of Fuel and Power may by order make such general regulations for the conduct and guidance of the persons acting in the management of mines or employed in or about mines as may appear best calculated to prevent dangerous accidents and to provide for the safety, health, convenience and proper discipline of the persons employed in or about mines, and for the care and treatment of horses and other animals used therein, and any such regulations may vary, amend or replace any of the provisions contained in Part II of, or the Third Schedule to, this Act.

(2) The regulations made under any such order may apply either to all mines or to any specified class or description of mines, and may provide for the exemption, either absolutely or subject to conditions, of a particular mine or a specified class or description of mines or of part of a particular mine, parts of all mines or parts of mines of a specified class or description.

SECTION 114.

POWERS OF MINISTER AS TO MAKING AND REVOKING ORDERS.

[*Verbal amendment by the Coal Mines Act, 1914.*]

114.—Any order of, or any exemption granted by, the Minister under this Act may be made or granted and from time to time revoked or altered by the Minister, either unconditionally or subject to such conditions as he may see fit, and shall be signed by the Minister or an under-secretary or assistant under-secretary.

THIRD SCHEDULE.

CARE AND TREATMENT OF ANIMALS.

[*As amended by the Coal Mines General Regulations, 1922, No. 113, and the Coal Mines (Horses) General Regulations, 1949, No. 2330.*]

1.—(1) No horse shall be taken underground until it is four years old and until it has been tested by a duly qualified veterinary surgeon in the prescribed manner and certified to be free from glanders.

* This Act (S. 9) also provides that the Minister's power to make General Regulations under S. 86(1) of the 1911 Act shall include power to make such regulations in respect of management matters as it appears to him to be requisite or expedient to make having regard to the needs of the mining industry, changes in the methods of mining, the progress of education and training and the results of research. Such regulations may vary, amend or replace any of the provisions in Part I of the 1911 Act.

(2) Every horse shall be examined once at least in every twelve months by a duly qualified veterinary surgeon and a report of each such examination (including a certificate of the fitness or unfitness of the horse for work or for work in the mine) shall be recorded in the book to be kept by the horsekeeper in pursuance of regulation thirteen and shall be signed by the veterinary surgeon.

(3) Any horse certified as aforesaid to be permanently unfit for work or for work in the mine shall as soon as practicable be brought to the surface.

(4) No horse certified as aforesaid to be unfit for work shall be disposed of alive, except for immediate destruction or to a Home of Rest or a responsible person.

2.—(1) Each horse underground shall be housed in a stall adequate for the size of the horse in a stable constructed and maintained as provided in the next following regulation.

(2) A sufficient supply of clean straw, or other suitable bedding, shall be provided for every horse in any stable.

(3) All stables in use shall be cleaned daily and kept in a sanitary condition.

3.—(1) No stable shall be used to house any horse unless—

(a) it is separated from any road used for travelling or the haulage of minerals ;

(b) it is adequately lit ;

(c) it is continuously and thoroughly ventilated with intake air ;

(d) one loose box of sufficient length, height and width to house the largest horse for the time being below ground in that district of the mine is provided at the return end of the stable for every twenty-five horses in the stable ;

(e) it is fitted with one or more drinking troughs which can be easily drained and cleaned the aggregate length and capacity whereof are sufficient for the horses for the time being housed in the stable ;

(f) the floor throughout is paved or concreted ; and suitable drainage is provided for every stall and loose box ;

(g) all roofs, walls and partitions not painted or made of slate, tiles, glazed brick or iron are limewashed once at least in every three months.

(2) No stall shall be constructed or adapted to accommodate more than one horse.

(3) No stall shall be used unless it is fitted with a manger.

4.—Competent persons, hereinafter referred to as “ horse-keepers ”, shall be appointed in writing by the manager to have the care of the horses used underground while in the stables, and of the stables, in the proportion of at least one horse-keeper to every fifteen horses.

5.—(1) A sufficient supply of wholesome food and pure water shall be provided daily for every horse while in the stable and while at work which shall so far as practicable be uncontaminated by dust or other deleterious substances when the horse has access to it.

(2) Without prejudice to the generality of the foregoing paragraph all receptacles for any such food or water as aforesaid shall so far as practicable be so constructed as to protect the contents from dust and other deleterious substances.

6.—A sufficient supply of suitable medicines, ointments and dressings, and a suitable appliance or appliances for the destruction of horses requiring to be destroyed, shall be provided and kept readily available for use.

7.—No horse shall be worked, or allowed by the horse-keeper to go out to work in an unfit condition, or improperly shod, or otherwise than with harness properly fitting and in good condition, including a guard for the eyes.

7a.—No horse shall be out of its stable for the purposes of work during any period—

(a) of twenty-four hours, for more than two shifts,

(b) of forty-eight hours, for more than three shifts, or

(c) of seven days, for more than seven shifts or for more than forty-eight hours in the aggregate :

Provided that nothing in this paragraph shall restrict the working of any horse where necessary by reason of unforeseen circumstances for the purpose of

(i) saving life ;

(ii) remedying the effect of an accident ; or

(iii) preventing serious interference with the working of the mine.

8.—(1) The driver having charge of any horse shall remain in charge of the horse during the whole time that it is out of its stable for the purposes of work during his shift and shall, if the period thereof exceeds four hours, ensure that the horse is fed and watered during that period, and, unless otherwise ordered, shall at the end of the shift return the horse to the horse-keeper at the stable.

(2) No horse out of its stable for the purposes of work shall be left unattended by the driver having charge of it unless it is properly secured.

9.—No blind horse shall be worked in a mine.

10.—The driver having charge of any horse shall, as soon as practicable, report to the official under whose direction he works and to the horse-keeper responsible for that horse any injury to or overworking of the horse, any insufficiency in the supply of food or water in any working place, any case in which the horse or harness rubs against the

roof or sides, or in which the harness or the shoeing is defective, and any other matter affecting the care or treatment of that horse.

11.—The horse-keeper shall, as soon as practicable after the return of any horse to the stable, examine the horse and its harness, attend to any injury to the horse, and clean and groom it himself, or cause it to be cleaned and groomed.

12.—Every official under whose direction the driver of any horse works and every horse-keeper shall at once report to the manager or under-manager any case of sickness in or injury to or any marks of ill-treatment on or any overworking of any horse coming to his notice, and any defect in the harness likely to cause pain or injury to the horse, and no horse with respect to which any such report is made shall be allowed to go out to work until authority in that behalf is given by the manager or under-manager.

13.—(1) Every horse-keeper shall keep a record in a book to be kept at the mine of all horses under his care, and shall make a daily report therein as to the condition of each horse, the driver in whose charge it has been, the time at which it was taken from the stables, the time at which it was returned thereto and the nature and extent of any working of the horse by virtue of the proviso to regulation 7a.

(2) Every horse-keeper shall, in addition to the matters required to be recorded as aforesaid, record any report made to or by him under the provisions of regulation ten or twelve (including a report of any action taken in relation to any complaint made to or by him).

(3) Where any report is made in pursuance of paragraph (2) of regulation one, that any horse is permanently unfit for work, or for work in the mine, a record thereof and of the manner in which that horse is disposed of shall be made by a person appointed in writing for the purpose by the manager in the book in which the record relating to that horse is kept in pursuance of paragraph (1) of this regulation.

14.—Every book kept by a horse-keeper under the foregoing provisions of this schedule shall be open to inspection by any special inspector.

15.—The manager shall, by himself or by some competent person appointed by him for the purpose, exercise such personal supervision over all horse-keepers, drivers, and other persons employed in connection with the horses used in the mine as is necessary to secure that the provisions of this Act relating to the care and treatment of horses in mines are observed in the mine.

16.—The owner, agent, or manager shall, as part of the return required to be made annually to the inspector of the division, furnish a statement showing the number of horses used in the mine, the number which have died during the year from injury by accident or from disease, or which required to be destroyed in consequence of injury or disease, the number of other cases of injury or ill-treatment reported to the manager under the provisions of this schedule, the number disposed

of as unfit for work in the mine but fit for other work, and the number disposed of as unfit for work of any kind but not for immediate destruction.

17.—In this schedule the expression “horse” includes pony, mule, and donkey.

18.—No horse shall be taken into or out of any part of a mine upon a bogie or other carriage excepting in a case of necessity arising through accident, or through injury to or illness of the horse; provided that nothing in this Regulation shall apply to the lowering or raising of a horse either through a shaft or by way of an incline where a horse could not walk with safety owing to the gradient.

TITLE OF DEPUTY.

[*The Coal Mines (Officials and Inspections) General Regulations, 1951, No. 848, substituted the title “deputy” for the alternative titles “fireman, examiner or deputy” in a number of sections of the Act. The sections to be amended, together with the existing and the substituted expressions are indicated below.]*

Number of Section.	Existing expression.	Substituted expression.
Sec. 16(2)	“firemen, examiners or deputies”	“deputies”
Sec. 16(3)	“firemen, examiners or deputies”	“deputies”
Sec. 27(1)	“firemen, examiners or deputies”	“deputies”
Sec. 27(1)	“fireman, examiner or deputy”	“deputy”
*Sec. 34(1) (ii) ...	“fireman, examiner or deputy”	“deputy in charge of the district”
*Sec. 50(4D)	“fireman, examiner or deputy of the district”	“deputy in charge of the district”
Sec. 51	“the firemen, examiners or deputies”	“each deputy concerned”
Sec. 52(2)	“a fireman, examiner or deputy”	“any deputy concerned”
Sec. 52(2)	“the firemen, examiners and deputies”	“each such deputy”
Sec. 67(1) (twice) ...	“fireman, examiner or deputy”	“deputy”
Sec. 67(4)	“fireman, examiner or deputy”	“deputy concerned”

* These amendments are incorporated in the amended version of the sections concerned contained in this volume.

PART TWO

REGULATIONS AND ORDERS.

(Note.—All the Regulations included here were made under S. 86 of the Coal Mines Act, 1911. The authority under which an Order was made is indicated under the title of the Order.)

A. GENERAL CODE OF REGULATIONS, 1913, No. 748.

PART I.

DUTIES OF OFFICIALS AND WORKMEN.

General.

1. It shall be the duty of the manager and under-manager to carry out and to the best of their ability enforce the provisions of every Order* in force under the Act regulating the supply, use and storage of explosives, and it shall be the duty of all persons employed in or about the mine to comply with the provisions of the said Orders.

2. Every notice required by the Regulations of the mine to be posted up shall be posted up in some conspicuous place where it may be conveniently read or seen by the persons affected, and so often as it becomes defaced, obliterated or destroyed, shall be renewed with all reasonable despatch.

3. No person shall enter the cage until authorised to do so by the onsetter or banksman, as the case may be ; or leave the cage until it shall have stopped at the landing place, and persons while waiting at the top or bottom of the shaft or any entrance into the shaft or while in the cage shall behave in an orderly manner and shall obey the directions of the banksman or onsetter, as the case may be, and shall not impede the banksman or onsetter in the discharge of his duties.

The banksman or onsetter, as the case may be, shall not when persons are being raised or lowered signal the cage away until the gates or other rigid fences with which the cage is provided are in position, and no person other than an official or person authorised in writing by the manager to give signals shall while riding in the cage interfere with the gates or fences.

4. Subject to any directions that may be given by any official of the mine, no workman shall, except so far as may be necessary for the purpose of getting to and from his work or in case of emergency or other justifiable cause necessarily connected with his employment, go into any part of the mine other than that part in which he works, or travel to or from his work by any road other than the proper travelling road.

* See page 68.

5. Every workman engaged at the face, or in stonework, or in timbering, shall carefully examine his working place before commencing work and before recommencing work after the firing of a shot, and after any interruption of work during the shift. Where several persons are working together and one of them is in charge, the examinations required by this Regulation shall be made by the man in charge.

6. Where the work of erecting the supports of the roof and sides of working places is done by the workmen employed therein, it shall be the duty of the workmen to carry out the requirements of S. 50 of the Act, and to comply with the directions contained in the notice required by that Section.

7. If any person shall cause, or become aware of, any obstruction in or interference with the ventilation, or of any stagnation or impurity in the air, of any part of the mine, or of any dangerous defect in any part of the roof or sides, or of any other source of danger, he shall, if it falls within the scope of his duties to remedy such obstruction, interference, stagnation, impurity, defect, or other source of danger, immediately proceed to take the steps necessary for the purpose, and if not he shall immediately inform the manager, under-manager, deputy in charge of the district or some other official, and shall, if he is working at the place where the danger exists, cease all work at that place.

8. If a sufficient supply of material for supporting the roof and sides of any working place is not available at the place appointed by the Act, the workman shall withdraw from the working place and report the circumstances to the deputy in charge of the district or some other official, and a note of the report shall be entered by the person to whom it is made in the report for the day, if any, which he may be required to make.

9. No person shall, without authority, pass beyond any fence or danger signal or open any locked door.

10. No person shall deface or remove any notice which may be set up, or any marks which may be made in any part of the workings for the guidance of the workmen or for any other proper purpose connected with the working of the mine.

11. No person shall brush or waft out gas.

12. No person shall allow any burning wick or part of a wick or other burning material to lie about in the mine, and every workman on leaving his working place shall take his light or lights with him.

13. Every person using a safety lamp shall examine the same externally, and assure himself that it is locked and in good order before entering the mine, and shall from time to time while in the mine examine the lamp to see that it is in safe working order ; and he shall, when he has completed his shift, return the lamp to the lamp-room. If the lamp is injured, while in his possession, he shall at once carefully extinguish the light.

14. No person shall place a safety lamp on its bottom unless it is necessary to do so for the safe performance of any particular work or unless authorised by the manager ; and in all cases whilst a person is at work it shall be placed at least two feet from the swing of the pick, hammer or other tool.

15. Should any person find himself in the presence of inflammable gas, he shall not throw away his lamp or attempt to blow it out but shall shelter it, hold the lamp near the floor, avoid jerking it, and take it steadily into fresh air. If the gas fires in the lamp where he cannot take it into fresh air, he shall smother out the light or extinguish it in water.

16. No person shall when trying or examining for the presence of gas with a safety lamp, raise the lamp higher than may be necessary to allow the presence of gas to be detected.

17. Every workman working at the face shall to the best of his power carry on his work so as at all times to leave a free passage for the air current. He shall also to the best of his power leave his working place at the end of his shift in such condition as to allow of work being safely resumed therein ; and if he finds it impossible to do so he shall fence it off and report the fact as soon as possible to the deputy in charge of the district or some other official.

18. (Revoked. See new provision in No. 11 of the Coal Mines (Ventilation) General Regulations, 1947, page 149.)

19. No person shall sleep whilst below ground in the mine or whilst in charge of any winding, hauling, ventilating, or signalling machinery or apparatus, or boilers.

20. No unauthorised person shall work or interfere with any signalling apparatus in or about the mine.

21. (a) The onsetter at any entrance into a shaft which is provided with a fence not worked by the cage or cages, shall not begin to remove the fence until either the cage is stopped at the entrance or it has reached such a position in the shaft that by the time the fence is removed the cage will be opposite the entrance, and shall close the fence immediately he has signalled the cage away, and shall not permit any other person to remove the fence while he is on duty.

(b) Reasonable protection against things falling down the shaft shall be provided for persons engaged in loading or unloading cages.

22. No person shall attempt to go on or across the uncovered space of the shaft bottom, except for the purpose of working in the shaft bottom, and no person shall be allowed to work in such space unless the cages are stopped.

23. Trains run for the conveyance of workmen, whether above or below ground and whether on the premises of a mine or on a line or

siding to which S. 111 of the Act applies,* shall be under the entire control of a person appointed to accompany and have charge of the train, and no person shall attempt to get into or out of the train when in motion nor ride upon the footboard (if any) or upon the buffers or couplings, nor refuse to comply with the direction of the person in charge, nor in any way obstruct or interfere with such person in the discharge of his duties, and any person failing to comply with this Regulation shall be reported by the person in charge to the manager or under-manager.

24. Every person having charge of a horse, pony, mule or donkey shall drive it carefully and shall observe any directions that may be given to him by the horse-keeper or by the official under whose direction he works.

25. (a) No person below ground shall ride upon any animal nor, except by permission of the manager or under-manager, upon any tram, tub or other contrivance drawn by a horse or other animal.

(b) No person shall ride on any haulage rope.

26. No person when taking a tub by hand down an incline of which the gradient exceeds 1 in 12 shall go in front of the tub ; and in every case where the conditions are such that a person cannot control the tub by hand from behind, he shall not take the tub down unless some contrivance is provided to enable him to control the tub.

27. No person shall be in or about the mine in a state of intoxication, or, without permission of the manager, take or bring any intoxicating liquor on or in the mine, and no person shall throw any stone or other missile, or fight or behave in a violent manner, in or about the mine.

28. No person employed in or about the mine shall negligently or wilfully do anything likely to endanger life or limb in the mine, or negligently or wilfully omit to do anything necessary for the safety of the mine or of the persons employed therein.

29. Every workman receiving in or about the mine any personal injury caused by an explosion of gas or dust or any explosive or by electricity or overwinding or any other special cause specified by an Order† under S. 80 (1) (iii) of the Act, or any personal injury causing him to absent himself from his work, shall as soon as possible report the same to one of the officials, and if required by the official shall forthwith proceed to the appointed place for first-aid treatment.

30. The manager shall appoint a competent person or persons to keep a correct record of the number of persons going below ground and returning from below ground daily, and if required by the manager

* S. 111 of the Act applies to any line or siding used in connexion with a mine and not being part of a railway within the meaning of the Railway Employment (Prevention of Accidents) Act, 1900, *i.e.* not being part of a railway used for the purposes of public traffic.

† No Order under S. 80(1) (iii) has at present been made.

every person shall immediately before going below ground and after returning from below ground record his presence in accordance with a system approved by the Inspector of the Division.

31. The manager shall cause to be posted up at the pit head where it may be conveniently seen by the persons employed a sketch plan of the mine showing the main roads, the means of egress from each part of the mine to the surface, and the telephone stations underground, and so often as the same becomes defaced, obliterated or destroyed shall cause it to be renewed with all reasonable despatch.

32. Where by the Act or Regulations of the mine any duty is imposed upon or authority given to any deputy, that duty in cases of emergency may be fulfilled or that authority exercised by and at the discretion of any official his superior at the mine and duly qualified to perform such duties.

33. Every person before engaging any helper, drawer or other assistant shall acquaint the manager, under-manager (if any) or any other official of the mine superior to the deputies, and obtain his sanction.

34. Every official of the mine shall carry out the duties assigned to him by the manager, and shall carry out and enforce those provisions of the Act and of the Regulations and Orders made thereunder which relate to the matters in respect of which such duties have been so assigned.

The Manager.

35. The manager shall appoint in writing to be officials of the mine such number of competent persons as will be sufficient to secure a thorough supervision of all the operations in or about the mine and the enforcement of the requirements of the Act and of the Regulations and Orders made thereunder. He shall assign their duties to the several officials of the mine, and shall to the best of his power see that each official understands, and carries out and enforces those provisions of the Act and of the Regulations and Orders made thereunder which relate to the matters in respect of which duties are assigned to him.

36. He shall give attention to and cause to be carefully investigated, any representations or complaints that may be made to him as to any matter affecting the safety or health of persons in or about the mine.

37. He shall appoint the stations required by S. 63 and the lamp stations, if any, in pursuance of S. 34(1) (iii) of the Act, and cause their positions to be indicated by notices constructed of durable material.

38. He shall see that a sufficient supply of proper materials and appliances for the purpose of carrying out the provisions of the Act and ensuring the safety of the mine and persons employed therein is always provided, and, if he be not the owner or agent of the mine,

he shall report in writing to the owner or agent when anything is required for the aforesaid purpose that is not within the scope of his authority to order.

39. He shall determine and state in a notice which shall be kept posted up at the pit head the number of persons to be allowed to ride in a cage at one time, or, where a cage has more than one deck, on each deck of the cage. When men are being raised from the pit bottom, if more than one deck is used, the top deck shall be loaded with men first, but this shall not apply when the decks are simultaneously loaded or when a balanced platform is used for loading the cages.

40. If no under-manager has been appointed for the mine, the manager shall carry out the duties imposed by these Regulations on the under-manager.

The Under-Manager.

41. It shall be the duty of the under-manager, as well as of the manager, to enforce to the best of his power the provisions of the Act and of the Regulations and Orders made thereunder, and he shall give (subject to the control of the manager) such directions as may be necessary to ensure compliance with those provisions and to secure the safety of the mine and the safety and health and proper discipline of the persons employed therein.

42. He shall give attention to and cause to be carefully investigated, any representations or complaints that may be made to him as to any matter affecting the safety or health of persons in or about the mine.

43. He shall, unless an official between himself and the deputies has been appointed, make arrangements for their meeting him daily for the purpose of conferring on matters connected with their duties ; and shall also make arrangements to meet the other underground officials daily for the like purpose.

44. He shall to the best of his power see that all necessary materials and appliances are sent into the districts as required, and he shall report at once to the manager any deficiency in the supply of such materials and appliances.

45. He shall from time to time carefully examine all travelable parts of the mine, whether frequented by workmen or not.

Officials between the Manager and Under-Manager and the Deputies.

46. (Revoked. See new provisions in the Coal Mines (Officials and Inspections) General Regulations, 1951, page 114.)

***47.** When any person is appointed to be an underground official of the mine superior to the [firemen, examiners or] deputies, but inferior

* From 1 June, 1952, the provisions of this Regulation will be replaced by new provisions in the Coal Mines (Officials and Inspections) General Regulations, 1951. See page 114.

to the manager or under-manager, he shall be a person of not less than 23 years of age, holding either a second-class certificate of competency or a fireman's certificate under the Act. He must also have had at least three years' practical experience underground in a mine.

48-62. (Revoked. See new provisions in the Coal Mines (Officials and Inspections) General Regulations, 1951, page 114.)

Winding Engineman.

For the purpose of the following regulations, cage includes kibble.

63. Every winding engineman (unless some other competent person is specially appointed for the purpose by the manager) shall, at the commencement of or during his shift, carefully examine the external parts of his engine, the drum, the ropes upon the drum, the brakes, the signal bell and the indicator showing the position of the cage in the shaft, and the automatic contrivance, if any, for preventing over-winding. If any defect likely to affect the proper working of the engine is discovered then or at any other time, he shall not commence or continue winding until the matter has been reported to the manager, or under-manager, or to the official under whose direction he works, and he shall not resume winding until instructed to do so by the manager, under-manager or official as aforesaid.

64. Unless some other person is specially appointed for the purpose, he shall during his shift keep the engine and apparatus connected therewith under his charge properly cleaned and oiled.

65. He shall on no pretext leave the handles whilst the engine is in motion, or when anyone is in the cage.

66. Should a signal be given indistinctly, or should he have any doubt about a signal, he shall on no account set his engine in motion until a fully understood signal is received.

67. Before raising or lowering any person after any cessation of winding exceeding two hours, he shall run the cage or cages at least once between the shaft top and the lowest drawing level in order to ascertain whether everything is in order, and if any defect is discovered likely to affect the proper working of the winding apparatus, he shall not commence winding until the matter has been reported to the manager or under-manager, or to the official under whose direction he works, and he is instructed to do so by the manager, under-manager or official as aforesaid.

68. He shall not allow any unauthorised person to be in the engine house, nor shall he, without the written permission of the manager or of the official under whose direction he works, allow anyone to work the engine. He shall in no circumstances permit anyone, except with the authority in writing of the manager, to work the engine while persons are being raised or lowered in the shaft.

Persons in Charge of Ventilating Machines.

The following regulations shall not apply to any auxiliary fan placed underground, which does not contribute to the general ventilation of the mine or of any ventilating district of the mine.

69. The owner, agent or manager shall cause to be provided in connexion with every ventilating fan driven by mechanical power a water gauge and either an automatic indicator registering the number of revolutions of the fan or an automatic indicator registering the water gauge.

70. The person in charge of any ventilating machinery driven by mechanical power shall keep the machinery running at the speed ordered by the manager or under-manager, and shall examine the machinery and observe the indicators at intervals which in the case of mines in which safety lamps are required by the Act or the regulations of the mine to be used shall be of not more than half an hour or such longer time as may be approved by the Inspector of the Division and in the case of other mines shall be of not more than two hours.

71. He shall immediately report to the official under whose direction he works any damage to, or defect or derangement in, the machinery.

72. He shall from time to time observe the ventilating pressure as indicated by the water gauge, and where an automatic indicator registering the water gauge is not in use, he shall at the end of each period of two hours enter in a book to be provided by the manager the number of revolutions of the fan and the pressure shown by the water gauge at the end of the period.

73. In the event of a stoppage of the machinery or of any unusual variation of the water gauge he shall at once inform the official under whose direction he works.

The Boiler Minder.

74. The person appointed to attend to any boiler shall from time to time throughout the day examine the boiler, feed-apparatus, safety valves, and other fittings, and dampers, and see that they are in good working order; and shall at once report to the official under whose direction he works any defect or derangement in the same.

75. He shall not, except with the authority of the official under whose direction he works, alter or permit anyone to alter the weight on any safety valve, and only weights made for the purpose shall be used on any safety valve.

76. He shall maintain the water in each boiler as nearly as practicable at the proper working level, but if it becomes too low, he shall at once lower the dampers, and damp down the fire, and, if necessary, draw the same, and report the circumstances to the official under whose direction he works. He shall also see that the pressure of steam fixed by the manager is on no account exceeded.

PART II.

MISCELLANEOUS PROVISIONS.

Air Measurements. [S. 29, subsection (2).]

77. (Revoked. See new provisions in No. 6 of the Coal Mines (Ventilation) General Regulations, 1947, page 149.)

Use of Electric Lamps other than locked Safety Lamps [Section 32].

78. (Revoked. See new provision in No. 7 of the Coal Mines General Regulations (Lighting), 1934, page 99.)

Character of Winding Apparatus, etc. [Section 40(1).]

79. In every mine which is not a small mine* the apparatus for raising and lowering persons to or from the surface, hereinafter called the winding apparatus, in any shaft which is more than 150 feet in depth, shall be worked by mechanical power.

80. Winding apparatus worked by mechanical power :—

(a) shall be so designed, constructed and maintained that, with the power provided, the raising and lowering of persons can be carried out with ease, regularity and safety ;

(b) if installed after the date on which these regulations come into force† shall have the drum shafts, if ten inches or more in diameter, bored longitudinally at the centre ;

(c) shall be firmly connected to a rigid foundation so as to prevent any material movement of the apparatus as a whole.

81. Where winding apparatus is worked by other than mechanical power it shall be efficiently constructed and maintained and provided with a locking device or brake sufficient in itself to hold the load in the shaft at any point.

82-88. (Revoked. See new provisions in the Coal Mines General Regulations (Winding and Haulage), 1937, page 155.)

Exemptions from the Provision requiring Two Main Intake Airways. [Section 42(1).]

89. The provision in Section 42, subsection (1), of the Act requiring two main intake airways, shall not apply :

(a) To any seam the coal of which is so liable to spontaneous combustion that the provision of a second main intake airway in such seam would increase the risk of fire.

(b) To any seam where, owing to the character of the strata or the nature of the pressure, the cost of making or maintaining

* " 'Small mine' means a mine in which the total number of persons employed below ground does not exceed 30 " (Coal Mines Act, 1911, S. 122).

† i.e. after 15 September, 1913.

two main intake airways in that seam might be so great as to prevent the seam being worked at a profit.

(c) To any part of a seam where the mineral field leased or owned is not of sufficient width to allow the distances required by the regulations of the mine to be maintained between the roads in such part.

(d) To mines of stratified ironstone in the Cleveland District to mines of oil shale, or to mines in any other district as respects which the Minister is satisfied that similar conditions prevail.

(e) To any mine in which the number of persons employed below ground does not at any one time exceed 100.

(f) To any seam which is naturally wet throughout.

If any question arises as to whether any of the foregoing exemptions applies to a mine or seam, that question shall be determined in the manner provided by the Act for settling disputes.*

90. The distance from the downcast shaft within which the two main intake airways shall not be required to be provided shall be the distance between the shaft and the edge of the shaft pillars. In the case of an inclined shaft or level entrance not driven in the coal seam the distance shall be the distance between the point where the shaft or entrance strikes the seam and the edge of the pillar left to support the shaft or entrance. In the case of an inclined shaft or level entrance driven in the coal seam, the distance shall be 200 yards from the mouth of the shaft or entrance.

Construction of Stoppings. [Section 42(3).]

91. (a) All stoppings between main intake and main return airways shall either :

(i) be constructed of tight stone, dirt, sand or rubbish packing at least five yards thick ; or

(ii) be constructed of tight stone, dirt, sand or rubbish packing at least three yards thick, and have the end of the packing nearest the intake airway faced with a wall of masonry, brickwork or concrete not less than nine inches thick, the face of which shall be covered with a coating of mortar so as to prevent leakage of air.

(b) The space between the face of the stopping and the roadway shall be kept clear.

(c) This Regulation shall apply only to mines in which coal is worked, and shall not apply to any mine in South Staffordshire which is liable to spontaneous combustion in the unworked coal.

* Coal Mines Act, 1911, S. 116. See also the Order prescribing the time and manner of serving notices under that section (1912, No. 1539).

Signalling (except in sinking pits). [Section 53.]

Winding.

*92. The following signals shall be used at all times in connexion with winding in shafts :—

(a) For winding persons :

(1) When a person is about to descend, the banksman shall signal to the onsetter and to the winding engineman	...	...	3
Before the person enters the cage the onsetter shall signal to the banksman and to the winding engineman	...	...	3
When the cage at the bottom is clear and ready to ascend, the onsetter shall signal to the banksman and winding engineman	...	...	1
When the person is in the cage and ready to descend, the banksman shall signal to the winding engineman	...	...	2
(2) When a person is about to ascend, the onsetter shall signal to the banksman and to the winding engineman	...	...	3
Before the person enters the cage the banksman shall signal to the onsetter	...	...	3
When the person is in the cage and ready to ascend, the onsetter shall signal to the banksman and to the winding engineman	...	...	1
When the banksman has received the signal "1" from the onsetter, he shall signal to the winding engineman	...	...	2

(b) For winding otherwise than with persons :

To raise up	...	...	...	...	...	...	...	1
To stop when in motion	...	...	...	...	...	...	...	1
To lower down	...	...	...	...	...	...	...	2
To raise steadily	...	...	...	...	...	...	...	4
To lower steadily	...	...	...	...	...	...	...	5

93. The manager shall, in the case of a mine where there are entrances into the workings from the shaft at different levels, prescribe the signals to be used to indicate the level to which the cage is to be sent, and in respect of movements of the cage between one level and another level, and shall fix any other signals that may be required.

94. A notice shall be posted in the engine house, and at the pit head, and at each entrance into the workings from the shaft, containing the foregoing signals and the signals fixed by the manager in pursuance of the preceding Regulation.

95. In connexion with every winding engine there shall be provided an appliance which shall automatically indicate in a visible manner to the winding engineman (in addition to the ordinary signal) the nature of the signal until the signal is complied with.

96. No person other than the banksman or onsetter shall give any signal unless he is an official of the mine or is authorised in writing by the manager to give signals.

97. *Temporary provision now lapsed.*

* Paragraphs (a) (1) and (2) of this Regulation are as amended by No. 30 of the General Regulations of 1920, No. 1423.

Hauling.

98. The following signals shall be used in all mines in connexion with underground haulage worked by gravity or mechanical power :—

(a) Direct or main rope haulage :

To stop	...	...	...	...	...	...	...	...	...	1
To lower	...	...	...	...	...	...	...	...	...	2
To wind up	...	...	...	...	...	...	...	...	...	3

(b) Haulage (other than endless rope or chain haulage) on self-acting inclines :

To stop	...	...	...	...	...	...	...	...	...	1
To lower	...	...	...	...	...	...	...	...	...	2
When persons are about to travel up or down the incline	...	...	...	...	...	...	...	...	...	4
This signal shall be acknowledged by signalling	...	...	...	...	...	...	...	...	...	4

(c) Main- and tail-rope haulage :

To stop	...	...	...	...	...	...	...	...	...	1
To haul inbye	...	...	...	...	...	...	...	...	...	2
To haul outbye	...	...	...	...	...	...	...	...	...	3
To slack out tail-rope	...	...	...	...	...	...	...	...	...	4
To tighten tail-rope	...	...	...	...	...	...	...	...	...	5
To slack out main-rope	...	...	...	...	...	...	...	...	...	6
To tighten main-rope	...	...	...	...	...	...	...	...	...	7

(d) Endless-rope (or endless-chain) haulage :

To commence hauling	...	...	...	...	...	...	...	...	...	2
To stop hauling	...	...	...	...	...	...	...	...	...	1

99. When persons are about to be conveyed inbye or outbye, each of the signals required by the foregoing Regulations to be given when a set or train of tubs is about to be hauled inbye or outbye, as the case may be, shall be preceded by a cautionary signal of 8

100. The manager shall, in the case of a mine where there are several districts, prescribe the additional signals to be used to indicate the districts ; and shall fix any other signals that may be required.

101. A notice shall be posted in the hauling engine house and at each signalling station, containing the system of haulage signals in use at such engine house or signalling station.

102. *Temporary provision now lapsed.*

Telephones. [Section 54.]

103. Where in any mine not being a small mine* the distance of the main haulage from the shaft exceeds 1,000 yards, efficient means of telephonic communication shall be provided and maintained between the end of the main haulage and the pit bottom and the surface.

* " 'Small mine' means a mine in which the total number of persons employed below ground does not exceed 30 " (Coal Mines Act, 1911, S. 122).

This Regulation shall not apply to mines of stratified ironstone in the Cleveland District, or to mines in any other district as respects which the Minister is satisfied that similar conditions prevail.

Barometer and Hygrometer. [Section 71.]

104. Every person on whom responsible duties are imposed with respect to the ventilation underground, and who is required to make a daily report in a book to be kept at the mine for the purpose, shall, immediately before going into the mine and after coming out of the mine, read† the barometer required to be placed near the entrance to the mine. This Regulation shall not apply to mines of stratified ironstone in the Cleveland District or to mines in any other district as respects which the Minister is satisfied that similar conditions prevail.

105. Each hygrometer placed below ground in pursuance of the Act shall be read† by a responsible official of the mine once every week-day if in the main intake airway and once every week if in the main return airway. This Regulation shall apply only to mines in which coal is worked.

Sanitary Conveniences. [Section 76.]

106. A sufficient supply of suitable sanitary conveniences shall be provided :

(a) On the surface, in or adjacent to the winding engine house and at other suitable places convenient for the persons employed. Where females are employed on the surface, separate conveniences shall be provided for their use.

(b) Below ground, at or near the pit bottom, and at suitable positions along the main roads. This provision shall not apply to a shaft in the course of being sunk.

107. Every sanitary convenience below ground shall have a portable receptacle constructed of metal, and provided with a metal cover.

108. A sufficient supply of disinfectant, or dry coal dust, or other suitable material for covering the faeces shall be constantly provided in a suitable receptacle at every convenience below ground and at conveniences (other than water-closets) on the surface.

109. (a) Every sanitary convenience on the surface shall be under cover and so partitioned off as to secure privacy, and, if for the use of females, shall have a proper door and inside fastening.

(b) Where females are employed the conveniences for each sex shall be so placed or so screened that the interior shall not be visible, even when the door of any convenience is open, from any place where persons of the other sex have to work or pass, and if the conveniences

† The readings are required by Section 71 to be entered in a book kept at the mine. The prescribed form of book for barometer readings is M. & Q. Form No. 53A, and for hygrometer readings No. 53B.

for one sex adjoin those for the other sex the approaches shall be separate.

110. Every sanitary convenience shall be kept in a cleanly and sanitary condition, and in good repair, and the receptacles of all conveniences below ground shall be emptied and cleaned not less frequently than once in every seven days and oftener if necessary. The receptacles shall be emptied at the surface unless satisfactory arrangements are made for disposing of the contents in the gob, goaf or waste or for their destruction in a furnace.

111. No person shall relieve his bowels on the surface or on any roadway below ground, except in one of the conveniences provided in accordance with the foregoing Regulations.

112. No person shall soil or render unfit for use in any way any convenience or sanitary utensil or appliance provided in accordance with the Regulations, and every person relieving himself below ground shall cover the faeces with disinfectant, or dry coal dust or other suitable material.

Storage and Use of Candles and Paraffin Wax.

113. Candles and paraffin wax shall not be stored in the mine below ground, except in pursuance of a written exemption by the Inspector of the Division, which exemption may be at any time withdrawn.

Where candles are taken below ground in proper metal boxes, each of which contains not more than one pound weight of candles, and not more than one box for each man is taken below ground, the keeping of such boxes in the working places or at a district station during a working shift shall not be deemed to be storage within the meaning of this Regulation.

114. Where candles are stored in the mine below ground in pursuance of an exemption as aforesaid, the following conditions shall be observed :

(a) The quantity stored on any day shall not exceed the supply reasonably required for that day ;

(b) Until required for use, they shall be kept in a box or boxes constructed of fireproof material and placed in a recess in the strata, which recess, if made in the coal, shall be lined with fireproof material. Each box shall be in the sole charge of a person specially appointed for the purpose in writing by the manager, and shall be kept securely locked. No person other than a person so appointed shall in any way interfere with any such box.

115. All candles used in the mine below ground shall be placed in a metal holder, which shall be of such design that when fixed to a prop the flame of the candle cannot set fire to the wood.

This Regulation shall not apply to candles :

- (1) When being carried ;
- (2) When used under the direct supervision of the person using the same.

116. Candles looped or strung together shall in no circumstances be burned off below ground.

PART III.

ELECTRICITY [SECTION 60].*

NOTE.—The original code of Electricity Regulations applied to apparatus below ground and to apparatus above ground which directly affected the safety of persons below ground, but *not* to other apparatus above ground. By No. 28 of the General Regulations dated 30 July, 1920, however, the code was applied with certain modifications to *all* apparatus above ground. Provisions which apply both below and above ground are printed in ordinary (Roman) type ; provisions which apply only below ground are printed in heavy (Clarendon) type ; and provisions which apply only above ground are printed in *italics*. The differences in type are introduced solely for the purpose of making these distinctions, and must not be regarded as implying any difference in the relative importance of the various requirements.

117. It shall be the duty of the mine owner, agent and manager to comply with and enforce the following Regulations, and it shall be the duty of all workmen and persons employed to conduct their work in accordance with the Regulations.

118. "Pressure" means the difference of electrical potential between any two conductors, or between a conductor and earth as read by a hot wire or electro-static volt-meter.

"Low Pressure" means a pressure in a system normally not exceeding 250 volts where the electrical energy is used.

"Medium Pressure" means a pressure in a system normally above 250 volts, but not exceeding 650 volts, where the electrical energy is used.

"High Pressure" means a pressure in a system normally above 650 volts, but not exceeding 3,000 volts, where the electrical energy is used or supplied.

"Extra-high Pressure" means a pressure in a system normally exceeding 3,000 volts, where the electrical energy is used or supplied.

"System" means an electrical system in which all the conductors and apparatus are electrically connected to a common source of electro-motive force.

"Concentric System" means a system in which the circuit in a conductor or conductors, called the inner conductor, is completed through one or more conductors, called the outer conductor, arranged so that the inner conductor is insulated and the outer conductor is

* An explanatory memorandum on the Electricity Regulations has been issued (M. & Q. Form No. 11).

disposed over the insulation of, and more or less completely around, the inner conductor.

“Conductor” means an electrical conductor arranged to be electrically connected to a system.

“Apparatus” means an electrical apparatus, and includes all apparatus, machines and fittings in which conductors are used, or of which they form a part.

“Circuit” means an electrical circuit forming a system or branch of a system.

“Covered with insulating material” means adequately covered with insulating material of such quality and thickness that there is no danger.

“Metallic covering” means iron or steel armouring, with or without a lead or other metallic sheath as the conditions of the case may require, or an iron or steel pipe surrounding two or more conductors.

“Bare” means not covered with insulating material.

“Live” means electrically charged.

“Dead” means at, or about, zero potential, and disconnected from any live system.

“Open Sparking” means sparking which owing to the lack of adequate provision for preventing the ignition of inflammable gas external to apparatus would ignite such inflammable gas.

“Earthed” means connected to the general mass of earth in such manner as will ensure at all times an immediate discharge of electrical energy without danger.

“Earthing system” means an electrical system in which all the conductors are earthed.

“Switchgear” means switches or fuses, conductors and other apparatus in connexion therewith, used for the purpose of controlling the current or pressure in any system or part of a system.

“Authorised person” means a person appointed in writing by the manager of the mine to carry out certain duties incidental to the generation, transformation, distribution, or use of electrical energy **in** (*at the surface of*) the mine, such person being a person who is competent for the purposes of the rule in which the term is used.

“Electrician” means a person appointed in writing by the manager of the mine to supervise the apparatus **in** (*at the surface of*) the mine and the working thereof, such person being a person who is over 21 years of age, and is competent for the purposes of the rule in which the term is used.

“Danger” means danger to health or danger to life or limb from shock, burn or other injury to persons employed, or from fire or explosion attendant upon the generation, transformation, distribution, or use of electrical energy.

“Use” of electricity means the conversion of electricity into mechanical energy, heat or light for the purpose of providing mechanical energy, heat or light.

119. Notices shall be sent to the Inspector of the Division, on the forms prescribed by the Minister, as follows, namely :—

(i) *Notice of the intention to introduce apparatus into any mine, or into any ventilating district in any mine.

(ii) *Notice of the intention to introduce or re-introduce electricity into any mine where the use of electricity has previously been prohibited by Section 60(1) of the Act.

(iii) †On or before the twenty-first day of January in every year, an annual return giving the size and type of apparatus and any particulars which may be required by the Minister as to the circumstances of its use.

If the Inspector of the Division does not object in writing, within one calendar month from the receipt by him of the notice, to the carrying out of either of the intentions specified in the first or second notices, the owner shall be entitled to carry out such intention or intentions.

Provided that this Regulation shall not apply to telephones and signalling apparatus.

120. A proper plan on the same scale as that kept at the mine in fulfilment of the requirements of the Act, shall be kept in the office at the mine showing the position of all fixed apparatus in the mine, other than cables, telephones and signalling apparatus. The said plan shall be corrected as often as may be necessary to keep it reasonably up to date, and it shall be produced to an inspector of mines at any time on his request.

121. The following notices, constructed of durable material, shall be exhibited where necessary :—

(i) A notice prohibiting any person other than an authorized person from handling or interfering with apparatus.

(ii) A notice containing directions as to procedure in case of fire. This notice shall be exhibited in every place containing apparatus, other than cables, telephones and signalling apparatus.

(iii) A notice containing directions as to the restoration of persons suffering from the effects of electric shock.

(iv) **A notice containing instructions how to communicate with the person appointed under Regulation 128 (a).** This notice shall be exhibited at the shaft bottom.

122. (a) In all places lighted by electricity where a failure of the electric light would be likely to cause danger, one or more safety lamps or other proper lights shall be kept continuously burning.

* The prescribed form of notice is M. & Q. Form No. 12.

† The prescribed form of Return is sent each year to the owner from the Ministry of Fuel and Power.

Words in ordinary (Roman) type apply both below and above ground. Words in heavy (Clarendon) type apply only below ground. Words in *italics* apply only above ground.

(b) Efficient telephonic or other equivalent means of communication shall be provided for communicating between the place in which the switchgear provided under Regulation 128 (a) is erected and the shaft bottom or main distributing centre in the pit.

(c) Fire buckets of suitable capacity, filled with clean dry sand ready for immediate use in extinguishing fires, shall be kept in every place containing apparatus, other than cables, telephones and signalling apparatus.

123. (a) Where necessary to prevent danger or mechanical damage **transformers and switchgear (apparatus)** shall be placed in a separate room, compartment, or box of fireproof construction. *Inflammable or explosive material shall not be stored in any such room, compartment or box.*

(b) Unless the apparatus is so constructed, protected, and worked as to obviate the risk of fire, no inflammable material shall be used in the construction of any room, compartment, or box containing apparatus or in the construction of any of the fittings therein. Each such room, compartment or box shall be substantially constructed and shall be kept dry.

(c) Adequate working space and means of access clear of obstruction and free from danger shall be provided for all apparatus that has to be worked or attended to by any person, and all handles intended to be operated shall be conveniently placed for that purpose.

124. (a) All apparatus and conductors shall be sufficient in size and power for the work they may be called upon to do, and so constructed, installed, protected, worked and maintained as to prevent danger so far as is reasonably practicable.

(b) All insulating material shall be chosen with special regard to the circumstances of its proposed use. It shall be of mechanical strength sufficient for its purpose, and, so far as is practicable, it shall be of such a character or so protected as fully to maintain its insulating properties under working conditions of temperature and moisture.

(c) Every part of a system shall be kept efficiently insulated from earth, except that (i) the neutral point of a polyphase system may be earthed at one point only; (ii) the mid-voltage point of any system, other than a concentric system, may be earthed at one point only; and (iii) the outer conductor of a concentric system shall be earthed. Where any point of a system is earthed it shall be earthed by connexion to an earthing system at the surface of the mine.

(d) Efficient means shall be provided for indicating any defect in the insulation of a system.

Words in ordinary (Roman) type apply both below and above ground. Words in heavy (Clarendon) type apply only below ground. Words in *italics* apply only above ground.

125. (a) All metallic sheaths, coverings, handles, joint boxes, switchgear frames, instrument covers, switch and fuse covers and boxes, and all lampholders, unless efficiently protected by an earthed or insulating covering made of fire-resisting material, and the frames and bedplates of generators, transformers and motors (including portable motors), shall be earthed by connexion to an earthing system at the surface of the mine.

(b) Where the cables are provided with a metallic covering constructed and installed in accordance with Regulation 129 (e), such metallic covering may be used as a means of connexion to the earthing system. All the conductors of an earthing system shall have a conductivity at all parts and at all joints at least equal to 50 per cent. of that of the largest conductor used solely to supply the apparatus, a part of which it is desired to earth. Provided that no conductor of an earthing system shall have a cross-sectional area of less than .022 of a square inch.*

Except that in the case of a portable lamp or other portable apparatus of small current capacity, connected to the system by means of a flexible cable complying with Regulation 130, the cross-sectional area of the earthing conductor in the flexible cable shall not be required to be greater than the cross-sectional area of either of the live conductors in the same flexible cable.

(c) All joints in earth conductors and all joints to the metallic covering of the cables shall be properly soldered or otherwise efficiently made, and every earth conductor shall be soldered into a lug for each of its terminal connexions. No switch, fuse, or circuit breaker shall be placed in any earth conductor.

This rule shall not apply (except in the case of portable apparatus) to any system in which the pressure does not exceed low pressure direct current or 125 volts alternating current.

126. (a) Where electricity is distributed at a pressure higher than medium pressure (i) it shall not be used without transformation to medium or low pressure except in fixed machines in which the high or extra-high pressure parts are stationary; and (ii) motors under 20 horse-power shall be supplied with current through a transformer stepping down to medium or low pressure.

(b) Where energy is transformed, suitable provision shall be made to guard against danger by reason of the lower-pressure apparatus becoming accidentally charged above its normal pressure by leakage from or contact with the higher-pressure apparatus.

* Temporary exemption has been given as to the minimum size of .022 square inch in favour of flexible cables of Type 30 in B.S. 708—1940 (5-core 0.01 square inch drilling machine flexible cable) provided that (a) the circuit is 3-phase at 125 volts (max.) with the neutral point earthed; and (b) remote control is used at not more than 30 volts and so arranged that any interruption in the pilot or earth conductor circuit shall automatically isolate the cable (S.R. & O. 1940, No. 293).

127. Switchgear and all terminals, cable ends, cable-joints and connexions of apparatus shall be constructed and installed so that—

- (i) All parts shall be of mechanical strength sufficient to resist rough usage.
- (ii) All conductors and contact areas shall be of ample current-carrying capacity, and all joints in conductors shall be properly soldered or otherwise efficiently made.
- (iii) The lodgment of any matter likely to diminish the insulation, and of coal dust on or close to live parts shall be prevented.
- (iv) All live parts shall be so protected or enclosed as to prevent accidental contact by persons and danger from arcs or short circuits, fire or water.
- (v) Where there may be risk of igniting gas, coal dust, or other inflammable material, all parts shall be so protected as to prevent open sparking.*

128. (a) Properly constructed switchgear for cutting off the supply of current to the mine shall be provided at the surface of the mine, and during the time any cable is live a person authorized to operate the said switchgear shall be available within easy reach thereof.

Lightning arresters, properly adjusted and maintained, shall be provided where necessary to prevent danger.

(b) Efficient means, suitably placed, shall be provided for cutting off all pressure from every part of a system, as may be necessary to prevent danger.

†(c) Such efficient means shall be provided in respect of each separate circuit for cutting off all pressure automatically from the circuit or part or parts of the circuit affected in the event of a fault as may be necessary to prevent danger.

(d) Every motor shall be controlled by switchgear for starting and stopping, so arranged as to cut off all pressure from the motor and from all apparatus in connexion therewith, and so placed as to be easily worked by the person appointed to work the motor.

(e) If a concentric system is used, no switch, fuse or circuit breaker shall be placed in the outer conductor, or in any conductor connected thereto, except that, if required, a reversing switch may be inserted in the outer conductor at the place where the current is being used. Nevertheless, switches, fuses, or circuit breakers may be used to break the connexion with the generators or transformers supplying the electricity; provided that the connexion of the outer conductor with the earthing system shall not thereby be broken.

* See note to Regulation 132 (i) and (ii).

† As amended by No. 33 of the General Regulations, 1920, No. 1423.

Words in ordinary (Roman) type apply both below and above ground. Words in heavy (Clarendon) type apply only below ground. Words in *italics* apply only above ground.

129. Unless so placed or otherwise safeguarded as to prevent danger, all cables, other than flexible cables for portable apparatus and **signalling wires** (*signal and telephone wires*), shall comply with the following requirements :—

(a) They shall be covered with insulating material (except that the outer conductor of a concentric system may be bare). The lead sheath of lead-sheathed cables and the iron or steel armouring of armoured cables shall be of not less thickness respectively than is recommended by the British Standards Institution.*

(b) They shall be efficiently protected from mechanical damage and supported at sufficiently frequent intervals and in such a manner as adequately to prevent danger and damage to the cables.

(c) Concentric cables, or two-core or multi-core cables protected by a metallic covering, or single-core cables protected by a metallic covering which shall contain all the conductors of the circuit, shall be used (i) where the pressure exceeds low pressure ; (ii) **where the roadway conveying the cables is also used for mechanical haulage** ; and (iii) where there may be risk of igniting **gas**, coal dust, or other inflammable material.

Provided that if the medium pressure direct-current system is used (i) two single-core cables protected by metallic coverings may be used for any circuit if the said metallic coverings are bonded together by earth conductors so placed that the distance between any two consecutive bonds is not greater than 100 feet measured along either cable, and (ii) two single-core cables covered with insulating material efficiently protected otherwise than by a metallic covering may be used in gate roads (except in gate roads which are also used for mechanical haulage, or where there may be risk of igniting gas, coal dust, or other inflammable material) for the purpose of supplying portable apparatus.

(d) Cables unprotected by a metallic covering shall be properly secured **by some non-conducting and readily breakable material** to efficient insulators.

(e) The metallic covering of every cable shall be (i) electrically continuous throughout ; (ii) earthed, if it is required by Regulation 125 (a) to be earthed, by a connexion to the earthing system of not less conductivity than the same length of the said metallic covering ; (iii) efficiently protected against corrosion where necessary ; (iv) of a conductivity at all parts and at all joints at least equal to 50 per cent. of the conductivity of the largest conductor enclosed by the said metallic covering ; and (v) where there may be risk of igniting **gas**, coal dust, or other inflammable material, so

* See B.S. Specification No. 7.

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constructed as to prevent as far as is practicable any fault or leakage of current from the live conductors from causing open sparking.

Provided that where two single-core cables protected by metallic coverings bonded together in accordance with paragraph (c) of this Regulation are used for a circuit, the conductivity of each of the said metallic coverings at all parts and at all joints shall be at least equal to 25 per cent. of the conductivity of the conductor enclosed thereby.

(f) Cables and conductors, where joined up to motors, transformers, switchgear and other apparatus, shall be installed so that (i) they are mechanically protected by securely attaching the metallic covering (if any) to the apparatus; and (ii) the insulating material at each cable end is efficiently sealed so as to prevent the diminution of its insulating properties. Where necessary to prevent abrasion **or to secure gas-tightness**, there shall be properly constructed bushes.

130. (a) Flexible cables for portable apparatus shall be two-core or multi-core and covered with insulating material which shall be efficiently protected from mechanical damage. If a flexible metallic covering be used either as the outer conductor of a concentric system or as a means of protection from mechanical damage, the same shall not alone be used to form an earth conductor for the portable apparatus.*

(b) Every flexible cable for portable apparatus shall be connected to the system and to the portable apparatus itself by a properly constructed connector.

(c) At every point where flexible cables *for portable apparatus* are joined to main cables a switch capable of entirely cutting off the pressure from the flexible cables shall be provided.

(d) No lampholder shall be in metallic connexion with the guard or other metal work of a portable lamp.

131. (a) Every person appointed to work, supervise, examine or adjust any apparatus shall be competent for the work that he is set to do. No person except an electrician or a competent person acting under his supervision shall undertake any work where technical knowledge or experience is required in order adequately to avoid danger.

(b) An electrician shall be appointed in writing by the manager to supervise the apparatus. If necessary for the proper fulfilment of the duties detailed in the succeeding paragraphs of this rule, the

* Temporary exemption has been given as to the use of a flexible metallic covering as an earth conductor in favour of pliable armoured cable of Type 21 in B.S. 708—1940 (4-core 0.0145 or 0.03 square inch) provided that (a) the circuit is 3-phase at 650 volts (max.) with the neutral point earthed; and (b) electrical interlock is used at not more than 30 volts and so arranged that any interruption in the pilot or earth conductor circuit shall automatically isolate the cable (S. R. & O., 1940, No. 293).

manager shall also appoint in writing an assistant or assistants to the electrician.

(c) The electrician shall be in daily attendance at the mine. He shall be responsible for the fulfilment of the following duties, which shall be carried out by him or by an assistant or assistants duly appointed under paragraph (b) : (i) the thorough examination of all apparatus (including the testing of earth conductors and metallic coverings for continuity) as often as may be necessary to prevent danger ; and (ii) the examination and testing of all new apparatus, and of all apparatus re-erected in a new position **in** (*at the surface of*) the mine before it is put into service in the new position.

Provided that in the absence of the electrician for more than one day the manager shall appoint in writing an efficient substitute.

(d) The electrician shall keep at the mine a log-book made up of daily log-sheets kept in the form prescribed by the Minister.* The said log-book shall be produced at any time to an inspector of mines on his request.

(e) Should there be a fault in any circuit the part affected shall be made dead without delay, and shall remain so until the fault has been remedied.

(f) All apparatus shall be kept clear of obstruction and free from dust, dirt and moisture, as may be necessary to prevent danger.

Inflammable or explosive material shall not be stored in any room, compartment or box containing apparatus, or in the vicinity of apparatus.

(g) Adequate precautions shall be taken by earthing or other suitable means to discharge electrically any conductor or apparatus, or any adjacent apparatus if there is danger therefrom, before it is handled and to prevent any conductor or apparatus from being accidentally or inadvertently electrically charged when persons are working thereon. While lamps are being changed the pressure shall be cut off.

Provided that this paragraph shall not apply to the cleaning of commutators and slip-rings working at low or medium pressures.

(h) The person authorized to work an electrically-driven **coal-cutter or other** portable machine shall not leave the machine while it is working, and shall, before leaving the **working place (machine)**, ensure that the pressure is cut off from the flexible trailing cable which supplies such **coal-cutter or other** portable machine. Trailing cables shall not be dragged along by the machine when working.

(i) Every flexible cable shall be examined periodically (if used with a portable machine, at least once in each shift by the person authorized to work the machine), and if found damaged or defective it shall forthwith be *repaired* or replaced by a spare cable in good and

* The prescribed form of log-book is M. & Q., Form No. 10.

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substantial repair. Such damaged or defective cable shall not be further used underground until after it has been sent to the surface and there properly repaired.

132. In any part of a mine in which inflammable gas, although not normally present, is likely to occur in quantity sufficient to be indicative of danger, the following additional requirements shall be observed :—

(i) All cables, apparatus, signalling wires and signalling instruments shall be constructed, installed, protected, worked and maintained, so that in the normal working thereof there shall be no risk of open sparking.*

(ii) All motors shall be constructed so that when any part is live all rubbing contacts (such as commutators and slip-rings) are so arranged or enclosed as to prevent open sparking.*

(iii) The pressure shall be switched off apparatus forthwith if open sparking occurs, and during the whole time that examination or adjustment disclosing parts liable to open sparking is being made. The pressure shall not be switched on again until the apparatus has been examined by the electrician or one of his duly appointed assistants and the defect (if any) has been remedied or the adjustment made.

(iv) (Revoked. See Part II of the Coal Mines General Regulations (Lighting), 1934, page 99.)

(v) (Revoked. See new provisions in Nos. 2 (e) and 5 (a) and (b) of the Coal Mines General Regulations (Firedamp Detectors), 1939, pages 84 and 85.)

133. (a) Current from lighting or power circuits shall not be used for firing shots,

(b) Shot-firing cables shall be covered and protected as provided by Regulation 130 (a) for flexible cables. Adequate precautions shall be taken to prevent them from touching other cables and apparatus.

* The Ministry tests of electrical apparatus as to its safety against the risk of open sparking comprise—

(a) the test as to flameproof enclosure of electrical apparatus of all descriptions designed for use on power circuits (e.g. motors, switchgear, lighting fittings, etc.): (see Testing Memorandum No. 4):

(b) the test as to intrinsic safety of signalling and telephone apparatus—General Regulation 8 of 8 August, 1938 (page 136): (see also Testing Memorandum No. 10):

(c) the test as to intrinsic safety of electrical shot-firing apparatus—Explosives in Coal Mines Order, Clause 6 (h) (page 78): (see also Testing Memorandum No. 10):

Apparatus is said to be “intrinsically safe” when it is so designed that it cannot produce any spark that is capable of igniting firedamp, either at contacts in the instrument itself or on bare line wires by which the instruments may be connected in circuit.

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134. (a) Where electricity is used for signalling the pressure in any one circuit shall not exceed 25 volts.

(b) Contact-makers used for signalling shall be so constructed as to prevent the accidental closing of the circuit.

(c) Adequate precautions shall be taken to prevent signal and telephone wires from touching cables and other apparatus.

135. (a) All relighting apparatus shall be so constructed, worked and maintained as to preclude the accumulation of explosive gas within it.

(b) Relighting apparatus shall not be used in any part of a mine to which Regulation 132 applies.

(c) (Revoked. See No. 2 (v) of the Coal Mines General Regulations (Safety Lamps), 1927, page 100.)

136. (Revoked by the Coal Mines (Locomotives) General Regulations, 1949, but any consent given under paragraph (b) is deemed to be given by the inspector of the division under Regulation 4 of the above regulations.)

137. (a) Any of the requirements of this Part of these Regulations shall not apply in any case in which exemption is obtained from the Minister on the ground either of emergency or special circumstances, on such conditions as the Minister may prescribe.

(b) (Lapsed.)

PART IV.

(Revoked and superseded by ~~Rescue~~ Regulations, 1928, and First-Aid Regulations, 1930.)

PART V.

SURFACE LINES AND SIDINGS.

The following regulations shall apply to lines of rails of not less than 4 ft. 8½ in. gauge and sidings, including lines or sidings to which Section 111 of the Act applies,† and the use of locomotives and wagons thereon:—

150. Point rods and signal wires in such a position as to be a source of danger to persons employed shall be sufficiently covered or otherwise guarded.

151. Ground levers working points shall be so placed that men working them are clear of adjacent lines, and shall be placed in a

† Section 111 of the Act applies to any line or siding used in connexion with a mine and not being part of a railway within the meaning of the Railway Employment (Prevention of Accidents) Act, 1900, i.e. not being part of a railway used for the purposes of public traffic.

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position parallel to the adjacent lines, or in such other position and be of such form as to cause as little obstruction as possible to persons employed.

This rule shall only apply to sidings constructed after 10 June, 1911.

152. Lines of rails and points shall be periodically examined and kept in efficient order, having regard to the nature of the traffic.

153. Coupling poles or other suitable mechanical appliances shall be provided where required, and shall be used in every case for coupling and uncoupling locomotives or wagons in motion wherever it is reasonably practicable.

154. Pointed wood sprags, not exceeding three feet in length, and scotches when required shall be provided for the use of persons in charge of the movement of wagons, and shall be used as and when required.

155. No person, except those in charge of the wagons, shall pass immediately in front of or between wagons moving under the screens.

156. Where during the period between one hour after sunset and one hour before sunrise, or in foggy weather, shunting or any operations likely to cause danger to persons employed are frequently carried on, efficient lighting shall be provided either by hand lamps or stationary lights, as the case may require, at all points where necessary for the safety of such persons.

157. Where materials are placed within three feet of a line of rails and persons employed are exposed to risk of injury from traffic by having to pass on foot over them or between them and the line, such material shall, as far as reasonably practicable, be so placed as not to endanger such persons, and there shall be adequate recesses at intervals of not more than 20 yards where the materials exceed that length.

This rule shall not apply to stocking grounds.

158. No person shall cross a line of rails by crawling or passing underneath a train or wagons thereon where there may be risk of danger from traffic.

159. Wagons shall not be moved or allowed to be moved on a line of rails by means of a prop or pole when other reasonably practicable means may be adopted. Props used for the above purpose shall be made of iron, steel or strong timber hooped with iron to prevent splitting, and ropes or chains used for towing shall be of a suitable nature and sufficient strength.

160. Wherever railway wagons are specially placed so as to afford a thoroughfare, such thoroughfare shall be at least five yards in length.

161. Where a locomotive pushes more than one wagon and risk of injury may thereby be caused to persons employed, a man shall, wherever it is safe and reasonably practicable, accompany or precede the front wagon, or other efficient means shall be taken to obviate such risk.

162. (a) No person shall be upon the buffer of a locomotive or wagon in motion unless there is a secure handhold, and shall not stand thereon unless there is also a secure footplace; (b) no person shall ride on a locomotive or wagon by means of a coupling pole or other like appliance.

163. No locomotive or wagon shall be moved on a line of rails until warning has been given by the person in charge to persons employed whose safety is likely to be endangered.

164. Where persons employed have to pass on foot or work, no locomotive or wagon shall be moved on a line of rails during the period between one hour after sunset and one hour before sunrise, or in foggy weather, unless the approaching end, wherever it is safe and reasonably practicable, is distinguished by a suitable light or accompanied by a man with a lamp.

Provided that this regulation shall not apply to the movement of locomotives or wagons within any area which is efficiently lighted by stationary lights.

165. Any person who has been holding a pair of points must see that they drop back into their proper position before leaving them, and in case of throw-over point levers he must see that the lever is thrown back into its proper position before leaving it.

166. Where wagons are used on self-acting inclined planes efficient stop-blocks shall be provided at the top of the inclines, and runaway switches shall be fixed in such positions as to prevent danger, and no wagon shall be left on a self-acting incline without being properly secured.

167. The driver in charge of a locomotive or a man preceding it on foot shall give an efficient sound signal as a warning on approaching any level crossing over a line of rails regularly used by persons employed, or any curve where sight is intercepted, or any other point of danger to persons employed.

168. A danger signal shall be exhibited at or near the ends of any wagon or train of wagons undergoing repair wherever persons employed are liable to be endangered by an approaching locomotive or wagon.

169. No person under the age of 18 shall be employed as a locomotive driver, and no person under the age of 16 shall be employed as a shunter.

170. All glass tubes of water gauges on locomotives or stationary boilers used for the movement of wagons shall be adequately protected by a covering or guard.

171. No person shall move or attempt to move a wagon by pushing at the buffer.

PART VI.

ADDITIONAL REGULATIONS FOR SINKING.

For the purpose of the regulations, kibble includes kettle, hoppit, tub, bowk, barrel or cage.

172. In addition to the daily examination required by Section 66 of the Act, the master sinker, or a competent person appointed for the purpose by the manager, shall once at least in every 24 hours examine thoroughly the state of the shaft and the state of all gear by which cradles, platforms, or pumps are slung in the shaft or by which persons or materials are raised or lowered.

173.—(a) The manager shall fix by a notice which shall be kept posted at the top of the shaft in a prominent position the number of persons who may ride in the kibble at one time, and the banksman or chargeman, as the case may be, shall not allow any person to ride in excess of that number.

(b) No person shall ride on or against a full kibble or on the edge of a kibble.

174.—No engine worked by mechanical power other than a fixed engine shall be used for lowering and raising persons and material in the shaft.

175.—Every cradle or platform used in the shaft shall be constructed with a grid or other suitable contrivance, when necessary to secure the efficient ventilation of the whole of the shaft.

176.—Every cradle or platform on which men work in the shaft shall be so protected as to prevent anyone falling off.

177.—While men are at work on any cradle or platform in the shaft the following precautions shall be strictly observed :—

(a) The cradle or platform shall be secured to the sides of the shaft in order to prevent its swinging.

(b) The flap over the kibble hole shall be securely fastened.

(c) If the cradle or platform is constructed of two or more pieces hinged, the pieces shall be securely bolted together.

(d) The cradle or platform shall not be moved except by the express direction of the manager, master sinker or chargeman.

178.—If work is carried on during the night the surface at the shaft top shall be efficiently lighted.

179.—The competent person appointed under Section 14 of the Act shall during his shift have entire charge of the operations in the shaft bottom, subject, however, to the directions of the master sinker or of the manager of the mine, and is hereinafter referred to as the chargeman.

180.—The examination required to be made by the chargeman before the commencement of work shall be made immediately before the descent of the shift.

181.—The chargeman shall as part of his examination before the commencement of work, or if work is carried on without any interval by a succession of shifts, then as part of his examinations during his shift, examine carefully the sides of the shaft, take off any loose stones, and otherwise satisfy himself that the shaft is in a safe condition for men to work at the bottom. When men are engaged in walling or tubbing the shaft a similar examination shall be made by a competent person appointed by the manager.

182.—The chargeman shall be the last man to ride at the end of the shift, and, if his shift is succeeded immediately by another shift, he shall not leave the bottom of the shaft until after the descent of the chargeman of the next shift.

183.—When stone, coal or débris or gear, tools or materials are being sent to the surface the chargeman shall see—

- (a) that the kibble is properly loaded;
- (b) that no stones, coal or débris are packed above the level of the top of the kibble;
- (c) that gear, tools or materials are put into an empty kibble, and, if they project above the level of the top of the kibble, are securely fastened to the bow or chains of the kibble before the kibble is sent away;
- (d) that the kibble before being sent away from the bottom is put into line with the pulleys and carefully steadied, and that the bottom and sides are free from adhering stones and dirt.

184.—No person shall be allowed to descend after any cessation of work in the shaft caused by the withdrawal of the workmen for shot-firing or other purposes until the chargeman, accompanied if necessary by not more than two other persons, has descended and examined the shaft and found it to be safe in all respects. If inflammable gas has been found or is likely to be found in the shaft the examination shall be made with a locked safety lamp of a type which will indicate the presence of such gas.

185.—The winding engineman shall not work the winding engine when men are in the shaft except in pursuance of a signal received from the banksman or chargeman.

186.—When lowering the kibble the winding engineman shall stop it when it has reached a point three fathoms above the bottom of the shaft or above any cradle or platform upon which the kibble is to alight, and shall wait the signal from the chargeman to let it down. When raising the kibble he shall stop the engine as soon as the kibble has been raised four feet from the bottom, in order that the chargeman may see that the rope is steadied, and shall not again move his engine until he has received the signal from the banksman or chargeman.

187.—When gear, tools or materials are being lowered the banksman shall see (a) that the kibble is properly loaded, (b) that no loose material

is packed above the level of the top of the kibble and (c) that gear or tools are put into an empty kibble, and if they project above the level of the top are securely fastened to the bow or chains of the kibble, and (d) that timber and other bulky articles are safely slung.

188.—The banksman shall at all times keep the shaft top and landing edge free from loose material.

189.—The following signals shall be used :—

To raise up	...	...	...	...	...	...	...	...	...	1
To lower down	...	...	...	...	...	...	...	...	...	2
To stop when in motion	...	...	...	...	...	...	...	...	...	1
When men are to ride a preliminary signal of	...	...	...	...	...	...	...	...	...	3

The manager shall fix such other signals as may be required.

190.—No person other than the banksman or chargeman shall give any signal unless he is an official of the mine or is authorised in writing by the manager to give signals.

B. GENERAL CODE OF REGULATIONS, 1920

No. 1423

PART I.

1-8.—(Revoked by the Coal Mines General Regulations (*Precautions against Coal Dust*), 1939—page 63.)

PART II.

PRECAUTIONS AGAINST SPONTANEOUS COMBUSTION.

9.—The following provisions shall apply to any mine or part of a mine in which safety lamps are required by Section 32 of the Act or by any Order or Regulations made under the Act to be used, and to any other mine where the Minister directs that they shall apply in view of the conditions existing in that mine. If any question arises as to the reasonableness of any such direction, it shall be determined in the manner provided by this Act for settling disputes :—

(i) On the appearance in any part of the mine of smoke or other sign indicating that a fire has or may have broken out below ground, every workman other than those necessarily engaged in dealing with the emergency shall be withdrawn from the ventilating district or districts affected, and before any workman is readmitted into the district or districts affected, the manager or under-manager, accompanied by the deputy or deputies concerned and by two persons selected by the workmen employed in the mine, shall examine the district or districts and shall make a full and accurate report* of the condition of the district or districts, and no workman shall be readmitted unless the manager or under-manager and the representatives of the workmen, if any, making the examination report the mine to be safe. If there is a disagreement between the manager or under-manager and the representatives of the workmen as to whether the mine is safe for the readmission of the men the question shall be referred to the Inspector of the Division or the Senior Inspector of Mines, whose decision shall be final. Every such report shall be signed by the persons making the examination and shall indicate if possible by means of a plan the situation of the fire. The report shall be kept at the office of the mine and a copy shall be posted up at the pit head the same day. The manager shall not be bound to delay the examination if after reasonable notice the representatives selected by the workmen are not readily available.

The reports† made by the responsible official appointed to supervise the affected area shall be posted up at the pit head at the end of each shift for the information of the workmen.

* The prescribed form of Report of Examinations made in pursuance of Regs. 9 (i), 9 (ii), 9 (iii) and 10 is M. & Q. Form No. 75.

† The prescribed form of Report is M. & Q. Form No. 76.

(ii) When the existence of a fire has been definitely ascertained, every workman, except those engaged in combating the fire, shall be withdrawn from the seam in which the fire exists and from every other seam communicating with the shaft on the same level, and shall not be readmitted until an examination has been made and the seam or seams reported to be safe in the manner indicated above.

Provided that—

(a) it shall not be necessary to withdraw the workmen on the intake side of the fire if the seam, or in cases to which proviso (b) applies, the ventilating district, in which the fire exists is naturally wet throughout, and it is reported after examination made in the manner indicated above that it is safe for such men to remain;

(b) it shall only be necessary to withdraw the workmen from the ventilating district or districts in which the fire exists if each ventilating district in the seam is adequately protected against the spread of an explosion of coal dust from any other district by some means approved by the Minister.

(c) it shall not be necessary to withdraw the workmen from any seam communicating with the shaft on the same level if such seam is naturally wet throughout or is adequately protected against the spread of an explosion of coal dust from the seam in which the fire exists by some means approved by the Minister.

(iii) While a fire is being dammed off, every workman in the mine, except the men engaged in the work of damming off the fire, shall be withdrawn from the mine, and shall not be readmitted after the completion of the work until an examination has been made, and the mine reported to be safe, in the manner indicated above.

There shall be available during the whole time, at or near the place, two suits of breathing apparatus or two smoke helmets,* and persons competent to use them.

(iv) Such means as may be approved by the Minister for the purpose shall be taken to render harmless the coal dust in all accessible parts of the mine immediately contiguous to the seat of the fire.

(v) The Minister may, after consultation with the owners and the representatives of the miners, by Order modify the requirements of the Regulation in respect of any mine, to such extent and subject to such conditions as he may think fit, if he is satisfied that this can be done without danger in view of the special character of the mine.

10.—Where in any mine or part of a mine to which the foregoing Regulation does not apply the existence of a fire has been definitely ascertained—

* For lists of approved types of breathing apparatus and of smoke helmets see page 209.

An examination of the place in which the fire exists shall be made in the manner indicated above, and if any part is reported to be dangerous the workmen, except those engaged in combating the fire, shall be withdrawn from such part. Provided that if there is a disagreement between the manager or under-manager and the representatives of the workmen as to whether any part is dangerous or not, or has been rendered safe, the question shall be referred to the Inspector of the Division or the Senior Inspector of Mines, whose decision shall be final.

When the workmen have been withdrawn from any part of the mine in pursuance of this Regulation they shall not be readmitted until a further examination has been made and such part reported to be safe in the manner indicated above.

PART III.

11-27.—(*Revoked by the Coal Mines General Regulations (Rescue), 1928—page 121.*)

PART IV.

28.—(*Electricity on Surface. This Regulation details the modifications to Part III of the General Code of 1913 in its application to apparatus used above ground. These amendments are incorporated in the latter regulations as indicated in the note at the beginning of Part III—See page 43.*)

PART V.

WORKINGS UNDER MOSS, ETC.

29.—Where coal or other mineral is being worked or roads driven under moss, quicksand, or other liquid matter (other than water), the following precautions shall be taken:—

(i) The nature and thickness both of the moss, quicksand, or other liquid matter and of the strata lying between it and the workings or roads shall be ascertained as accurately as possible by boring at a sufficient number of points or otherwise.

(ii) If the thickness of the intervening strata is found at any point to be less than 60 feet or ten times the thickness of the seam worked or proposed to be worked, whichever is greater, no further work except work necessary for the preservation of the mine shall be carried on below ground except with the consent of the Minister and subject to such precautions as he may direct. The Minister may vary the precautions from time to time.

(iii) Before any decision is given or the precautions are varied by the Minister the matter shall be referred for consideration by a

Committee consisting of the Divisional Inspector of Mines, one representative of the management and one representative of the persons employed in the mine, who shall submit their recommendations to the Minister.

(iv) If the owner, agent, or manager objects to the decision of the Minister, the matter shall be settled in the manner provided by the Coal Mines Act, 1911, for settling disputes.

PART VI. MISCELLANEOUS.

30.—(*Amends No. 92 of the General Code of 1913—page 39.*)

31.—(*Revoked by the Coal Mines General Regulations (Safety Lamps), 1927—page 100.*)

32.—When a shaft is being sunk through water-bearing strata, at least four ladders shall be provided from the bottom of the shaft as a means of escape in case of emergency to the surface or some other place of safety. Provided that where not more than ten persons are employed below ground at any one time, it shall not be necessary to provide more than two ladders.

33.—(*Amends No. 128 (c) of the General Code dated July 10, 1913—page 48.*)

C. OTHER REGULATIONS AND ORDERS*

(In alphabetical order of subject matter.)

PRECAUTIONS AGAINST COAL DUST (SECTION 62).

Coal Mines General Regulations (Precautions against Coal Dust), 1939, No. 1803.

1.—In these Regulations :—

“*Inspector*” means the Inspector of the Division.

“*Sieve*” means a sieve made to the specification for test sieves of the British Standards Institution.

“*Road*” includes all roads of any description extending from the shaft or outlet to within ten yards of the coal face, but chutes from the coal face down which coal is thrown, offices, stables, engine-houses, motor switch and transformer rooms and pump-rooms, shall not be deemed to form part of any road.

“*Travelling Road*” means a road used by the main body of any shift employed in the mine for travelling to or from their working places, and where the mine is divided into districts, the road so used by the main body of men employed in a district.

2.—The Regulations shall apply to all mines in which coal other than anthracite is worked.

3.—Such measures shall be taken for the prevention, suppression, collection and removal of coal dust and for treating it with incombustible dust or in other manner approved by the Minister as will ensure that on the floor, roof and sides, respectively, of every road or part of a road which is accessible, the dust which can be raised into the air shall contain, when tested in the manner hereinafter prescribed, not less than the percentage of incombustible matter set out in the Schedule to these Regulations according to the volatile matter content of the coal.

The percentage of incombustible matter means the actual percentage of incombustible matter (including moisture) contained in the dust, plus any percentage allowance permitted on account of any of the incombustible matter which is of superior efficacy as compared with ordinary shale dust. The permitted percentage allowance, if any, shall be calculated from the analysis of the dust in the appropriate manner prescribed by the Minister.

The volatile matter content of the coal means the average volatile matter content calculated on an ash-free dry basis of the seam of coal worked through the road (or if more than one seam is so worked of that seam which has the highest average volatile matter content) and shall be deemed to be more than 35 per cent. unless the contrary

* The Regulations and Orders relating to the Mining Qualifications Board and to matters within its province are included in Part III.

has been proved by an analysis made and communicated to the Inspector within the previous 12 months. The analysis shall be made by one of the methods specified by the British Standards Institution and the sample of coal used for such analysis shall be taken either from a representative section of the seam or from a representative quantity of the run-of-mine coal from the seam.

Provided that :—

- (i) the foregoing requirements shall not apply to any road through which anthracite only is worked ;
- (ii) in any seam in which inflammable gas is unknown and in which no explosive other than a sheathed permitted explosive is used in any road or ripping or any dry and dusty part of the mine, the percentage of incombustible matter shall not be required to be more than 50 per cent. if that is the natural condition of dust throughout the road, or more than 60 per cent. if the road is treated with incombustible dust ;
- (iii) in roads supported by steel arches, and in other roads except where otherwise directed by the Inspector, it shall suffice if the foregoing requirements are complied with in respect of the dust on the roof and sides taken together instead of the dust on the roof and the sides respectively ;
- (iv) when the dust on the floor of a road is systematically treated in a manner approved by the Minister so as to consolidate it and render it indispersable, it shall suffice (unless otherwise directed by the Inspector) if the foregoing requirements are complied with in respect of the dust on the floor, roof and sides taken together and sampled, under No. 6 (b) of these Regulations, to a depth of one quarter of an inch as near as may be.

4.—The incombustible dust used for the purpose of these Regulations shall be :—

(a) of such fineness that, of the dry dust which passes through a 60-mesh sieve not less than 50 per cent. by weight and, except with the permission in writing of the Minister, not more than 75 per cent. by weight shall pass through a 240-mesh sieve ;

(b) of such character that it is readily dispersable into the air and, when in use in places where it is not directly wetted by water from the strata, does not cake but is dispersed into the air when blown upon with the mouth or by a suitable appliance.

No incombustible dust shall continue to be used if it is found by tests, which shall be carried out regularly, not to comply with these requirements.

5.—No dust shall be used for the purpose of complying with these Regulations of a kind which may be prohibited by the Minister on the ground that it is likely to be injurious to the health of persons working in a mine.

Provided that if any dispute arises as to whether the dust is likely to be injurious, it shall be determined in the manner provided by the Act for settling disputes.

6.—The following steps shall be taken for the purpose of ensuring that No. 3 of these Regulations is complied with :—

(a) Samples of the dust shall be systematically collected and analysed, and, in respect of roads used for the transport of coal, and of return airways within 200 yards of the working face, the number of samples collected and analysed during each calendar month shall not be fewer (except with the consent in writing of the Inspector) than in the proportion of ten per mile of those roads and airways.

Provided that if analyses of the samples collected from any road have shown that the natural conditions of the road are such that No. 3 of these Regulations is complied with, or have shown, in respect of roads not used for the transport of coal and not within 200 yards of a working face, that the application of additional incombustible dust has not been required more than once in every six months, it shall suffice, so long as there is no visible change in the conditions, to collect and analyse the samples at intervals not exceeding three months, or at such longer intervals as may be authorized in writing by the Inspector.

(b) The samples of dust so collected shall be representative samples, and each sample shall be collected over a section of road not less than 50 yards in length and shall comprise the dust collected to a depth of one quarter of an inch as near as may be on the roof and the sides and a depth not exceeding one inch on the floor, either

(i) by a method of strip sampling, by which the dust is collected from a succession of transverse strips as nearly as possible of equal width and equally spaced not more than five yards apart, of an aggregate area not less than 1 per cent. of the total area sampled ; or

(ii) by a method of spot sampling by which one sub-sample or increment of dust for each yard of the length sampled is collected, as nearly as possible at regularly spaced intervals along a zig-zag path.

Provided that if, since a sample was last collected over such a section of road, some part of that section has been treated with incombustible dust more frequently or more recently than other parts, separate samples shall be collected over the several parts irrespective of their lengths.

(c) Each sample shall be well mixed and quartered, and a representative portion of the mixture shall be sieved through a 60-mesh sieve and analysed by the appropriate method pre-

scribed* by the Minister; provided that if any dispute arises as to the correctness of any of the methods of analysis prescribed it shall be determined in the manner provided by the Act for settling disputes.

(d) Within 21 days of the taking of each sample the analysis shall be posted at the pithead and shall be recorded, with such other information as may be prescribed,† in a book to be kept at the mine for the purpose.

* The methods of analysis have been prescribed by the following Order :

The Mine Dust Analysis Order, 1939 (No. 1805).

1.—(a) The sample of dust shall be sieved through a 60-mesh sieve. The sieve may be tapped lightly to assist the passage of the dust through the sieve, but the dust shall not be rubbed through the sieve. The dust that passes through the sieve shall be kept in an air-tight container until it is analysed.

(b) If a dust sample is too damp to be sieved through the 60-mesh sieve, it shall be sieved through an 18-mesh sieve and the fraction passing through that sieve shall be allowed to dry in the air during one hour and thereafter shall be sieved through a 60-mesh sieve, as described in the preceding paragraph. The percentage loss of moisture from the dust during the preliminary drying in the air shall be determined and a correction shall then be made to the determined incombustible content of the dust which has passed through the 60-mesh sieve.‡

(c) The sieves used shall be made to the specification for test sieves of the British Standards Institution.

‡ NOTE.—This correction shall be calculated as follows: If M is the percentage loss in weight of the dust passing the 18-mesh sieve during air-drying, and I is the percentage of total incombustible matter in the dust passing the 60-mesh sieve, then the corrected total incombustible content of the dust per cent. is :—

$$\frac{M + I (100 - M)}{100}$$

2. The samples of dust prepared as aforesaid shall be analysed as follows :

(a) *Dust Samples which contain no Carbonates or Gypsum.*

(i) A weighed quantity of the sieved dust shall be dried at a temperature between 105° and 110° C., and the weight lost shall be reckoned as moisture.

(ii) The residue shall then be brought to red-heat in an open vessel until it no longer loses weight. The weight of the incinerated residue added to the weight of the moisture shall be reckoned as incombustible matter and be expressed as a percentage of the total weight of the sieved dust.

(b) *Dust Samples which contain Carbonates.*

(i) A weighed quantity of the sieved dust shall be dried at a temperature between 105° and 110° C., and the weight lost shall be reckoned as moisture.

(ii) The residue shall then be heated in an open vessel to a temperature of at least 950° C. until it no longer loses weight. The incinerated residue shall be weighed.

(iii) A weighed quantity of the sieved dust shall be treated with dilute hydrochloric acid in a suitable apparatus and the weight of carbon dioxide evolved from the dust shall be either (a) determined directly or (b) calculated from the volume of carbon dioxide evolved, or (c) determined in any other manner approved by the Minister.

(iv) The sum of the weights of moisture, carbon dioxide and incinerated residue, shall be reckoned as incombustible matter and be expressed as a percentage of the total weight of the sieved dust.

† The prescribed form of book is M. & Q. Form 41.

(e) Except at mines employing less than 100 persons underground, each analysis shall be given in the book a distinctive colour, number, letter or mark, identifying it as relating to a particular length of road which shall be legibly marked in the same way on a suitable plan or plans kept for the purpose with the book.

7.—(Substitutes new provisions for S. 62(3) of the Coal Mines Act, 1911—page 19.)

8.—Before material consisting wholly or largely of coal dust is transported in a tub through any part of the mine which contains electrical cables or apparatus, effective measures shall be taken, in accordance with directions to be given by the Manager, so to enclose the material as to prevent the coal dust from being thrown into the air in the event of the tub being upset.

9.—(Revocation Clause.)

10.—These Regulations may be cited as the Coal Mines General Regulations (Precautions against Coal Dust), 1939, and shall come into force on 1st January, 1940, except that in so far as any provision requires that the dust shall contain more than 65 per cent. of incombustible matter, that provision shall in that respect come into force on 1st January, 1941.

Provided that if it is shown to the satisfaction of the Inspector in respect of any part of a mine, for which the dust is required to contain more than 65 per cent. of incombustible matter, that it has not been reasonably practicable by that date to take all the steps necessary to enable the requirement to be carried out, the Inspector may, subject to such conditions as he thinks fit, allow for that part of the mine such further extension of time as appears to him to be reasonably required.

SCHEDULE (Regulation 3).

MINIMUM PERCENTAGE OF INCOMBUSTIBLE MATTER REQUIRED FOR COALS OF VARIOUS VOLATILE MATTER CONTENTS.

Average volatile matter content of coal. (Per cent.)	Minimum percentage of incombustible matter required.
Not exceeding	
20	50
22	55
25	60
27	65
30	68
32	70
35	72
Exceeding	75

(c) *Dust Samples which contain Gypsum.*

(i) A weighed quantity of the sieved dust shall be dried at a temperature between 135° and 140° C., and the weight lost shall be reckoned as moisture.

(ii) The residue shall then be brought to a red-heat in an open vessel until it no longer loses weight. The weight of incinerated residue added to the weight of moisture shall be reckoned as incombustible matter and expressed as a percentage of the total weight of the sieved dust.

(d) *Dust samples which require special methods of analysis.*

Dust mixtures for which the foregoing methods of analysis are shown to be unsuitable shall be analysed by such other methods as may from time to time be prescribed by the Minister.

NOTIFICATION OF DANGEROUS OCCURRENCES.

Order dated 22 December, 1906, No. 934.

[Made under S. 5 of the Notice of Accidents Act, 1906.]

Under this Order the provision of the said Act requiring notice of accidents in mines and quarries to be given to an Inspector were extended to the following classes of occurrences, whether personal injury or disablement is caused or not :—

All cases of ignition of gas or dust below ground other than ignitions of gas in a safety lamp.

All cases of fire below ground.

All cases of breakage of ropes, chains, or other gear by which men are lowered or raised.

All cases of overwinding cages while men are being lowered or raised.

All cases of inrush of water from old workings.

EXPLOSIVES AND BLASTING APPLIANCES (SECTION 61).

Explosives in Coal Mines Order, 1934, No. 6.*

(As amended by the Explosives in Coal Mines Orders, 1937 No. 1049, 1938 No. 1409, 1940 No. 1700, 1943 No. 1360, 1946 No. 2060 and 1948 No. 181.)

[Made under S. 61 of the Coal Mines Act, 1911.]

PART I.

GENERAL PROVISIONS.†

1.—(a) No explosive substance shall be stored underground in any mine. The owner, agent or manager of the mine shall provide a suitable place or places of storage above ground for all explosives intended to be used in the mine and shall make suitable provision conveniently near the entrance of the mine for the storage of surplus explosive brought out of the mine at the end of each shift.‡ If any explosive remains in the possession of a workman at the end of his shift, either he shall bring it with him out of the mine and return it at once to the place of storage provided for the purpose, or if the explosive is required for a shift immediately following, he shall deliver it personally to the workman succeeding him in his working place.

(b) No explosive shall be taken or used underground except in cartridges, and such cartridges shall be taken into the mine and kept

* An entirely new Order (The Coal Mines (Explosives) Order, 1951, No. 1675) will come into operation on 1 February, 1952.

† The Coal Mines Act, 1911, provides that "no explosives shall be taken into or used in any mine except explosives provided by the owner, and the price, if any, charged by the owner to the workman for any explosives so provided shall not exceed the actual net cost to the owner," (Section 61(2)).

‡ See memorandum on the storage of explosives printed in the Appendix (see page 213).

until about to be used for the charging of a shot-hole in a secure case or canister containing not more than five pounds, and a person shall not have in use at one time in any one place more than one of such cases or canisters. No explosive shall be taken or used underground except in cartridges of the diameter of $\frac{7}{8}$ inch, $1\frac{1}{4}$ inches, $1\frac{7}{16}$ inches, $1\frac{3}{4}$ inches, or 2 inches, or in the ironstone mines in the Cleveland District, in cartridges of the diameter of $1\frac{3}{6}$ inches.

(c) No drill shall be used for the boring of a shot-hole unless it allows at least a clearance of $\frac{1}{8}$ inch over the diameter of the cartridge which is intended to be used in the shot-hole, and no person shall attempt to charge a shot-hole unless such clearance exists.

(d) (i) Detonators shall be kept in a place of storage provided in pursuance of Clause 1 (a) of this Order until issued.

(ii) The detonators in any place of storage as aforesaid shall be under the sole control of the manager or some one person specially authorised in writing by the manager to have such control in respect of that place of storage for the time being.

(iii) The manager or other person for the time being having control of detonators as aforesaid shall only issue detonators—

(a) in mines to which Part II of this Order applies, to shot-firers appointed in pursuance of Clause 6 of this Order;

(b) in other mines, to such officials of the mine, who shall be either firemen, examiners or deputies of the mine, or underground officials of the mine superior to the firemen, examiners or deputies, as are specially authorised in writing by the manager for the purpose. Provided that, in any such mine, if shot-firers are appointed for the mine subject to the same conditions and having the same duties as shot-firers in mines to which Part II of this Order applies, detonators may be issued to such shot-firers.

(iv) Every person to whom detonators are issued as aforesaid shall keep the detonators until they are about to be used for the charging of a shot-hole, in a suitable case or box, which shall be provided by the owner and which shall be kept securely locked and separate from any other case or box containing explosive, and shall be used only for the storage of the detonators.

(v) No person shall take into the mine or have in his possession in the mine any detonators except in accordance with the foregoing provisions.

(vi) In the case of a shaft being sunk from the surface or deepened, it shall not be deemed a contravention of the foregoing provisions if the primers for charges are fitted with detonators on the surface before being taken into the shaft, provided the primers are so fitted in a workshop established under Section 47 of the Explosives Act, 1875, and are only taken into the shaft immediately before use by the shot-firer or

other authorised person and in a thick felt bag or other receptacle sufficient to protect them from shock.

2.—(a) Every charge shall be placed in a properly drilled and placed shot-hole, and shall have sufficient stemming, and each such charge shall consist of a cartridge or cartridges of not more than one description of explosive. It shall be the duty of the person firing the shot to satisfy himself that these requirements are fulfilled before he fires the shot.

(b) No iron or steel scraper, charger, tamping rod, or stemmer shall be taken into or used in the mine; and only clay or other non-inflammable substances shall be used for stemming, and shall be provided by the owner, agent or manager of the mine.

(c) No explosive shall be forcibly pressed into a hole, and, when a hole has been charged, the explosive shall not be unrammed, nor shall any part of the stemming be removed nor shall the detonator leads be pulled out.

(d) Before any shot-hole is charged, the direction of the hole shall, where possible, be distinctly marked on the roof or other convenient place.

(e) The person firing the shot shall, before doing so, see that all persons in the vicinity have taken proper shelter, and he shall also take suitable steps to prevent any person approaching the shot. He shall also himself take proper shelter. If he has reason to believe that there is a possibility of the shot blowing through into an adjoining place he shall send verbal warning to the persons in that adjoining place to take proper shelter.

(f) No shot shall be fired in any mine except by means of an efficient electrical apparatus or by means of a fuse complying with the conditions and ignited in the manner specified in the Second Schedule hereto. Provided that in a coal mine or part of a coal mine in which the use of safety lamps is not required and to which Part II of this Order does not apply and in any mine not being a coal mine, shots may be fired by means of squibs of the character specified in the Third Schedule hereto, subject to the following conditions:—

(a) Squibs shall not be taken into the mine except in a suitable metal case, separate from any other explosive, and shall be kept in the case until about to be used for the firing of a shot.

(b) No person shall shorten, bend or untwist the slow match or touch, or light it except at the extreme outer end, or in any other way expedite its burning.

(c) No person shall relight a touch which has died out or been extinguished.

No person shall take into a mine or have in his possession any squib other than a squib of the character specified in the Third Schedule.

(g) The person firing the shot shall, after the shot has been fired, make a careful examination of the place and see that it is safe in all respects.

* (h) Where shots are fired electrically they shall only be fired by a person authorised in writing by the manager for the purpose. The authorised person shall not use, for the purpose of firing, a cable which is less than 20 yards in length. He shall himself couple up the cable to the fuse or detonator wires and shall do so before coupling the cable to the firing apparatus. He shall take care to prevent the cable coming into contact with any power or lighting cables. He shall also himself couple the cable to the firing apparatus. Before doing so, he shall see that all persons in the vicinity have taken proper shelter.

(i) No unauthorised person shall open or interfere with any electrical shot-firing apparatus. Every electrical shot-firing apparatus shall be so constructed and used

(i) that it can only be operated by a removable handle or plug. This handle or plug shall not be placed in position until a shot is about to be fired and shall be removed as soon as a shot has been fired, and it shall at all times whilst the authorised person is on duty be kept in his personal custody;

(ii) that the firing circuit is made and broken either automatically or by means of a push button switch.

(j) Once at least in every three months every electrical shot-firing apparatus in use shall be cleaned and thoroughly overhauled either by the maker of the apparatus or by a competent person appointed in writing by the manager.

(k) No person shall use or allow to be used any electrical shot-firing apparatus which is defective or unsafe. An apparatus shall be deemed to be defective if it fails to fire any shot or the whole of a round of shots.

3.—If a shot misses fire :—

(a) The person firing the shot shall not himself approach or allow any other person to approach nor shall any person knowingly approach the shot-hole until an interval has elapsed of not less than ten minutes in the case of shots fired by electricity or by a squib, and not less than an hour in the case of shots fired by other means.

(b) If the person firing the shot has occasion to leave the place, he shall fence off the place before leaving, and attach to each fence a danger board indicating the presence of a miss-fired shot.

(c) A second charge shall not be placed in the same hole.

(d) If the shot was fired electrically the person firing the shot shall, before approaching or allowing anyone to approach the shot-hole,

* As regards shot-firing cables, see also No. 133 of the General Regulations of 10 July, 1913 (page 52).

disconnect the cable and the removable handle or plug from the firing apparatus and shall examine the cable and connexions for any defect, and no person shall knowingly approach the shot-hole until this has been done.

(e) Except where the miss-fire is due to a faulty cable or a faulty connexion, and the shot is fired as soon as practicable after the defect is remedied, another shot shall be fired in a fresh hole which shall be drilled not less than 12 inches away from the hole in which the shot has missed fire, and shall, as far as practicable, be parallel with it.

(f) If the miss-fired shot contained a detonator, the person firing the second shot shall, before doing so, attach a string to the electric leads or the fuse of the miss-fired shot, and secure it by attaching it to the cable or to a prop or otherwise.

(g) After the second shot has been fired no person shall work in the place until the person firing the shot or an official of the mine has made a careful search for the detonator and charge of the miss-fired shot. If the detonator and charge are not found, the stone or mineral shall be loaded under the supervision of the person firing the shot, or an official, and sent to the surface in a specially marked tub. The search for the detonator and charge, and the loading of any stone or mineral which may contain a detonator, shall be carried out as far as possible without the use of tools.

(h) Should the miss-fired shot not be dislodged by the second shot, further holes must be drilled and the same precautions taken as aforesaid.

(i) The person or persons firing the shots shall report the circumstances to the manager or under-manager without delay, and the number of cartridges, if any, which have not been found, and hand to him the detonator and charge, if found.

4.—The foregoing provisions of Clause 2 (c) as to the removal of any part of the stemming and the pulling out of detonator leads and of Clause 3 as to miss-fired shots shall not apply in cases in which an exemption has been granted by the Minister on the ground that an appliance is used which enables the detonator to be removed with safety after the shot-hole has been charged.

PART II.

SPECIAL PROVISIONS.

5.—(a) In all coal mines in which inflammable gas has been found within the previous three months in such quantity as to be indicative of danger, no explosive, other than a permitted explosive as hereinafter

defined,* shall be used in or taken for the purpose of use into the seam or seams in which the gas has been found, or any shaft or drift communicating therewith which is in process of being sunk, deepened, driven or enlarged, as the case may be.

(b) In all coal mines which are not naturally wet throughout no explosive, other than a permitted explosive as hereinafter defined,* shall be used in or taken for the purpose of use into any road or any dry and dusty part of the mine, or any shaft or drift communicating therewith which is in process of being sunk, deepened, driven or enlarged, as the case may be.

6.—In all cases in which permitted explosives are required by this Order to be used :—

(a) Competent persons (in this Order called shot-firers) shall be appointed in writing by the manager for the purpose of firing shots, and no shot shall be fired except by a shot-firer. No person whose wages depend on the amount of mineral to be gotten shall be so appointed, and no person not employed as a shot-firer prior to the commencement of this Order shall be qualified to be appointed or to be a shot-firer unless :—

(i) he is the holder of a first or second class certificate of competency under the Coal Mines Act, 1911, or is 23 years of age or upwards and has had at least five years' practical experience underground in a mine of which not less than two years have been at the face of the workings of a mine ; and

(ii) he has obtained the like certificates as to his ability to make accurate tests for inflammable gas and as to his eyesight as are required by Section 15 of the Act in the case of firemen, examiners or deputies. The provisions as to such certificates shall so far as applicable have effect as if incorporated in this Order. Provided that this requirement shall not apply to shot-firers employed in mines in which inflammable gas is unknown.

(aa) Unless in stone drifts or sinking pits, no shot-firer shall in any one hour or in any one shift fire a greater number of shots than the appropriate maximum number fixed for him in accordance with the provisions of the next following Clause.

(b) A shot-firer shall keep a daily record (in a book† which shall be kept at the mine for the purpose in accordance with the provisions of Section 24 of the Act) of the shots fired by him.

(c) No shot shall be fired in coal unless the coal has been holed to a depth greater than the depth of the shot-hole. This provision shall not apply to any anthracite mine or to any mine which may

* A non-permitted explosive may, however, be used in approved types of safety appliances for destroying horses, subject to the provisions of the Explosives in Coal Mines (Horse Killers) Order, 1931 (see page 92).

† The prescribed form of book is M. & Q. Form No. 52.

be exempted by the Inspector of the Division on the ground that, by reason of the character of the coal or the inclination of the seam, holing would be impracticable or dangerous.

(d) Every shot-hole shall be charged and stemmed by or under the supervision of a shot-firer. Before the hole is charged a shot-firer shall examine it for breaks running along or across, and, except in mines in which inflammable gas is unknown, shall examine in manner provided below for inflammable gas issuing from it; and the hole shall not be charged if he finds any such break (except in stone drifts if special permission has been given in writing by the manager or under-manager) or any inflammable gas.

(dd) When two or more shot-holes have been placed in such a manner that the firing of the shot in any one of those holes would be liable to relieve any part of the work to be done by the firing of the shot in any other of those holes, only one of those holes shall be charged at a time; and until the shot in a hole which has been charged has been fired no other of those holes shall be charged:

Provided that the provisions of this paragraph shall not apply in any case in which shots to bring down coal are fired between shifts if and so far as the observance of such provisions would necessitate the firing of the shot in any of those holes during a working shift.

(e) No cartridge shall be used unless it is marked in the manner set forth in the First Schedule hereto in addition to any marks required by the Order permitting such explosive to be used.

(f) (i) No shot shall be fired unless, immediately before the shot is to be fired, the shot-firer has examined the place where the shot is to be fired and all contiguous accessible places within a radius of 20 yards from the place, and has found them clear of inflammable gas and in all respects safe for firing. If within the aforesaid radius of the place there is any cavity which may contain inflammable gas and cannot be so examined, or any break where an examination cannot be made for inflammable gas issuing from it (other than inaccessible cavities or breaks in the gob, goaf or waste) the shot shall not be fired.

The examination shall be made with a flame safety lamp, with which may be used an electric safety lamp, each lamp (except in small mines) to be of a type approved* for that purpose, or with any other apparatus that may be approved for the purpose.

* The Deputies' and Shotfirers' (Safety Lamp) Order, 1938, approved the following types of lamps for use by deputies when making inspections required by S. 64 and 65 of the Act, and by shotfirers in pursuance of the requirement above:—

(a) Any type of combined flame and electric lamp.
(b) Any type of flame lamp which is fitted with a self-contained relighting device and is adjustable by the user to admit air at the top of the lamp only.

(c) For use in conjunction with a flame lamp of a type approved as being capable of giving light throughout the shift, any type of electric hand lamp weighing not more than three and a half pounds, and any type of electric cap lamp.

Nor shall any shot be fired in the roof of any longwall working between the coal face and the waste or in any longwall waste without a written authority signed by the agent (if any) and the manager. An authority as aforesaid may be granted so as to apply to any part or parts of the mine specified therein ; but shall not be granted unless the agent (if any) and the manager are satisfied both, by examination of the method of working, that it is unreasonable or impracticable to break down the roof otherwise than by shot-firing, and, by systematic examination of air samples drawn from that waste, that the proportion of inflammable gas present therein does not normally exceed one per centum.

Provided that these requirements shall not apply to mines in which inflammable gas is unknown.

(ii) No shot shall be fired until the place where the shot is to be fired and the floor, roof and sides of all contiguous accessible places within a radius of five yards from the place where the shot is to be fired have been thoroughly treated with incombustible dust or with water, or in such other manner as the Minister may approve. If the place where the shot is to be fired is in or near the coal face and not more than ten yards from a road which has been so treated under the Coal Mines General Regulations (Precautions against Coal Dust) of 8 December, 1939, the treatment shall in addition be made continuous from the road to the shot-hole.

Provided that if the manager or under-manager has satisfied himself as regards any part of the mine that the natural conditions for the time being in respect of the presence of incombustible dust and moisture render any coal dust harmless, he may give to the shot-firers concerned special permission in writing to dispense with the foregoing precaution in that part of the mine. A copy of every such permission shall be posted at the pit-head and a copy shall be forwarded to the Inspector of the Division at least seven clear days before the permission becomes operative. If at any time any question arises under this proviso as to whether the natural conditions of any part of a mine render any coal dust harmless, the decision of the Inspector of the Division shall be final, subject to an appeal to the Chief Inspector of Mines ; and pending the settlement of the question, no permission given in pursuance of this proviso in respect of that part of the mine shall become or continue operative without the consent of the Inspector of the Division.

(d) For use in conjunction with a flame lamp of a type not approved as being capable of giving light throughout the shift, any type of electric hand lamp weighing not more than six and a half pounds, and any type of electric cap lamp.

The approval is subject to the following conditions :—

(a) Each lamp shall be of a type approved in pursuance of Section 33 of the Coal Mines Act, 1911.

(b) Each electric lamp and combined flame and electric lamp shall be provided with a switch.

(c) Every deputy and shot-firer shall, in any case, have one lamp of a type approved as being capable of giving light throughout the shift.

(g) (i) Two or more shots shall not be fired simultaneously otherwise than in stone drifts and in sinking pits or with the permission of the Chief Inspector of Mines;

(ii) All shots fired simultaneously shall be fired electrically and, except in sinking pits, in series.

(iii) Shots shall not be fired by means of delay action detonators except in stone drifts and sinking pits with the permission of the Chief Inspector of Mines.

(iv) The provisions of section one hundred and nineteen of the Coal Mines Act, 1911, shall apply to any permission granted by the Chief Inspector of Mines under this paragraph as they apply to any exemption granted by the Inspector of a Division.

(h) (i) No shot shall be fired, otherwise than in a sinking pit, except by means of an electrical shot-firing apparatus of a type for the time being approved by the Minister.*

(ii) On or after the first day of March, 1944, two or more shots shall not be fired simultaneously, otherwise than in a sinking pit, except by means of an apparatus approved for that purpose by the Minister*; provided nevertheless that the Inspector of the Division in which any mine is situate may at any time, if he is satisfied that the owner of such mine is unable to obtain for the purposes of the mine sufficient apparatus approved for that purpose, exempt the mine from compliance with the provisions contained in this paragraph to such extent as he may think fit.

(iii) Without prejudice to the provisions of paragraph (j) of Clause 2, every apparatus approved for the simultaneous firing of two or more shots shall be examined and tested in such manner and at such times, or within such periods, as the Minister may from time to time direct.

(i) Each explosive shall be used in the manner and subject to the conditions marked on each cartridge and on the inner packages of such explosive.

(j) No detonator shall be used other than an electric detonator in which the explosive is contained in a copper capsule.

6A.—(1) The maximum number of shots which each shot-firer may fire in any one hour and in any one shift respectively shall be fixed by the manager in accordance with the provisions of the two next following paragraphs:—

Provided that if in the case of a shot-firer for whom statutory duties under section fourteen of the Coal Mines Act, 1911, have been appointed, the said maximum number in any one shift exceeds ten, the manager shall give notice thereof in writing to the Inspector of the Division on a form prescribed by the Minister, and shall furnish all such relevant information as the said Inspector may reasonably require:

* For list of approved types, *see* page 194.

Provided also that the said Inspector may at any time if he thinks it necessary for the safety of the persons employed in or about the mine require the manager to fix a lower maximum number for any shot-firer for any hour or shift, whereupon the manager shall fix a lower number accordingly ; so however that the manager may thereafter refer the matter to be determined in manner provided for settling disputes by the Coal Mines Act, 1911.

(2) The manager shall ascertain in relation to the conditions in which each shot-firer will work the time normally required to prepare and fire a shot in accordance with the provisions of this Order ; and the maximum number as aforesaid fixed for any shot-firer shall be based upon :—

- (a) the time ascertained as aforesaid ;
- (b) the time required for that shot-firer to move between shots ;
- (c) the assistance (if any) available to him in the performance of his said duties ; and
- (d) any other duties assigned to him whether by statute or otherwise.

(3) The manager may at any time increase, and shall at all times reduce, the maximum number fixed as aforesaid for any shot-firer, where requisite by reason of any material change in any of the matters upon which that number is required to be based ; so however that the provisos to paragraph (1) of this clause shall apply in relation to any number varied as provided in this paragraph as they apply in relation to a number fixed as provided in the said paragraph (1).

7.—In the main haulage roads and main intake airways and any place immediately contiguous thereto in any coal mine which is not naturally wet throughout—

(a) No explosive shall be used other than a permitted explosive as hereinafter defined, and in accordance with the conditions prescribed by Clause 6 of this Order ;

(b) No shot shall be fired without the special permission in writing of the manager or under-manager ;

(c) No shot shall be fired unless the workmen have been removed from the seam in which the shot is to be fired and from all seams communicating with the shaft on the same level, except the men engaged in firing the shot and in addition such other persons, not exceeding the number hereinafter specified, as are necessarily employed in attending to the ventilating furnaces, steam boilers, engines, machinery, winding or ventilating apparatus, signals or horses, or in inspecting the mine ;

In mines in which the total number of persons employed below ground does not exceed 500	...	...	...	10
In mines in which the total number of persons employed below ground does not exceed 1,000	...	...	...	20
In mines in which the total number of persons employed below ground exceeds 1,000	...	...	...	30

Provided that in mines where mechanical power or gravity is used for the purpose of hauling mineral from the face, and the movement of the strata renders it necessary to maintain the height of the roads by ripping, the foregoing provision relating to the removal of workmen shall not apply to men who may remain in the mine for the purpose of carrying on the ripping or of repairs within such distance of the face as may be fixed by the manager with the approval of the Inspector of the Division.

Provided also that where the Chief Inspector of Mines is satisfied that the firing of shots is necessary in order to carry out work required for the safety of the mine and that compliance with the foregoing provision relating to the removal of workmen would have the effect of preventing the carrying out of that work or of delaying it unduly, he may by certificate in writing authorise for such period as he thinks fit such relaxation of the said provision as is necessary to meet the difficulty, and he shall by any such certificate require such other precautions to be taken as he considers desirable to ensure the safety of the persons employed. Any such certificate of the Chief Inspector of Mines may be amended or revoked by him at any time.

PART III.

SUPPLEMENTAL.

8.—The foregoing provisions shall apply in the case of sinking operations with the following additions:—

(a) No explosive shall be taken or sent into the shaft until immediately before it is required for use.

(b) No shot shall be fired except by means of an efficient electrical apparatus.

(c) The firing cable shall not be coupled up to the fuse or detonator wires until the kettle, kibble, tub, bowk or hoppit is conveniently placed for the men in the shaft to enter, and the chargeman has received a signal from the surface that the engineer-man is ready to draw away on receipt of the signal to do so, and the cable shall not be coupled to the firing apparatus until all persons are in a place of safety.

(d) After a shot has been fired the chargeman shall not allow any person to descend until he has descended, accompanied if necessary by not more than two other persons, and has examined the place and found it to be safe in all respects. If the place is one in which inflammable gas has been found or is likely to be found, the examination shall be made with a locked flame safety lamp of a type which will indicate the presence of such gas.

9.—Where a mine contains separate seams, this Order shall apply to each seam as if it were a separate mine.

10.—A copy of this Order (with the exception of the First Schedule)

shall be supplied to every shot-firer and shall also be kept posted up in some conspicuous place at or near the mine where it may be conveniently read or seen by the persons employed.*

11.—In this Order—

The term "permitted explosive" means an explosive permitted by the Minister under such definition and subject to such conditions as the Minister may prescribe.†

A "permitted explosive" shall comply in every respect with the prescribed definition, and any explosive that does not so comply shall not be deemed to be a permitted explosive;

Provided that an owner, agent or manager shall not be responsible for such non-compliance if he shows that he has in good faith purchased an explosive marked on the packages and the cartridges as a permitted explosive, and that he has taken all reasonable means to prevent deterioration of the explosive while stored.

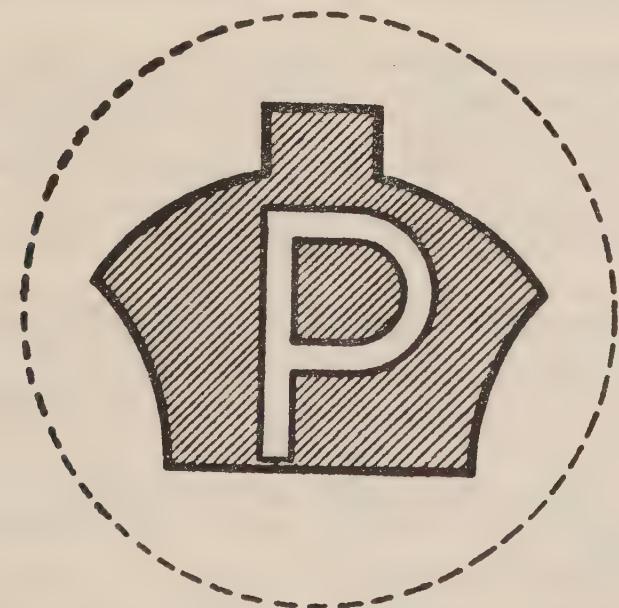
The term "coal mine" includes mines in which coal is found, whether worked or not.

The term "road" includes all roads of any description extending from the shaft or outlet to within ten yards of the coal face.

The term "main haulage road" means a road which has been, or for the time being is, in use for moving tubs by gravity or by mechanical power.

First Schedule.

Each cartridge of explosive, in addition to any marking required by the Order permitting that explosive to be used, shall also be marked with the outline of a Crown with the letter P in the centre, as shown below. In the case of compressed cartridges, which are not contained in a wrapper of paper or metal, the outline of the Crown must be indented on the end of the pellet.



* The official edition in poster form is M. & Q. Form No. 34.

† See list on page 191.

Second Schedule.

The fuse shall consist of a core of gunpowder, protected by not less than three coverings of thread or by not less than two coverings of thread and one of tape or gutta-percha. The fuse shall be of such quality that the time of burning of the fuse shall not vary more than ten seconds above or below the rate of 90 seconds for every yard of fuse. The fuse shall be ignited by means of an igniter contained in a tube which when attached to the fuse forms a completely closed chamber or, in the case of a mine or part of a mine in which the use of safety lamps is not required, the fuse may be ignited by means of a naked light, subject to the conditions that in such mine or part of a mine no person while charging a shot-hole or handling any explosive not contained in a securely closed case or canister shall smoke or allow any naked light to be within a distance of four feet of the shot-hole or explosive, and before a light is brought near to the hole for the purpose of firing the shot all other explosive shall be removed from the neighbourhood of the shot-hole.

Third Schedule.

(a) A squib, consisting of a tube of paper or other suitable material, coated externally with a solution of silicate of soda or other suitable solution, which will keep it in shape, protect it from damp and prevent it from smouldering, filled with gunpowder and having one end closed by a plug and the other end closed by being twisted, such twisted end being coated with sulphur or treated with saltpetre.

(b) The Brock Squib, consisting of a tapering tube of non-smouldering paper, the larger end of this tube being filled with slow-burning fuse composition and coloured yellow to denote the end to be ignited ; the smaller end being fitted with a length of quickmatch reaching to the fuse composition and secured in position by crimping the paper case.

Provided that in every case the squib shall have been manufactured at an explosives factory licensed by the Secretary of State and that the time of burning of the squib when tested at the factory (which test whenever so required by one of H.M. Inspectors of Explosives shall be carried out by, or in the presence of, such Inspector) shall not vary more than 15 seconds above or below 75 seconds.

Coal Mines (Cardox and Hydrox) Order, 1941, No. 513.

[Made under S. 61 of the Coal Mines Act, 1911.]

(As amended by the Coal Mines (Cardox and Hydrox) Order, 1945, No. 1468.)

This Order regulates the supply, use and storage of Cardox Carbon Dioxide Cartridges and Hydrox Steel Tube Cartridges, hereinafter collectively called "the cartridges".

1.—In all mines to which the Coal Mines Act, 1911, applies, the use of the cartridges shall be governed by this Order and not by any Order made under that Act applying to the use of blasting explosives.

2.—The cartridges shall be of types permitted by the Minister for the purpose of this Order and shall be in conformity with specifications prescribed by the Minister.

3.—(a) The charging and priming of the cartridges shall be carried out on the surface in a suitable building or room separated from accommodation used for other purposes. In this building or room no inflammable materials other than those required for charging and priming and no smoking shall be allowed, and adequate means for extinguishing fire shall be provided.

(b) A notice shall be kept posted up in the charging room stating the prescribed weight of charge and type of heater, igniter or initiator for each type of cartridge in use, and no cartridge shall be charged or primed otherwise than in accordance with this notice.

4.—(a) Adequate means shall be employed to prevent cartridges from falling out of the cage while being lowered or raised in the shaft, and they shall be transported below ground only in tubs marked distinctively to indicate their contents, and used for the time being solely for that purpose.

(b) The number of cartridges which are taken or allowed to be below ground at one time shall not exceed the number estimated to be required for use in the next firing shift. If any cartridges remain unused at the end of the shift, they may be stored below ground until the next firing shift, provided that they are stored in a suitable place specified by the Manager.

5.—The cartridges shall only be fired by a competent person authorised in writing by the manager for the purpose.

6.—(a) Every cartridge shall be placed in a properly drilled and placed hole.

(b) The hole shall allow sufficient clearance to permit of the cartridge being inserted without using undue force.

(c) The manager shall prescribe, and the person firing the cartridge shall take appropriate measures to ensure that no cartridge shall be ejected from the hole in a dangerous manner on firing.

7.—(a) No cartridge shall be fired except by means of an efficient electrical firing apparatus which shall be so constructed and used

(i) that it can only be operated by a removable handle or plug which shall not be placed in position until a cartridge is about to be fired, shall be removed as soon as a cartridge has been fired, and shall be kept in the personal custody of the person firing the cartridges at all times when he is on duty; and

(ii) that the firing circuit is made and broken either automatically or by means of a push button switch.

(b) Once at least in every three months every electrical firing

apparatus in use shall be cleaned and thoroughly overhauled either by the maker of the apparatus or by a competent person appointed in writing by the manager.

(c) No person shall knowingly use or allow to be used any firing apparatus which has become unsafe or defective, and no unauthorised person shall open or interfere with any electrical firing apparatus.

8.—(a) The person firing a cartridge shall not use, for the purpose of firing, a cable which is less than 20 yards in length. He shall himself couple up the cable to the cartridge and shall do so before coupling the cable to the firing apparatus. He shall take care to prevent the cable coming into contact with any power or lighting cables. He shall also himself couple the cable to the firing apparatus.

(b) The person firing the cartridge shall, before doing so, see that all persons in the vicinity have taken proper shelter, and he shall also take suitable steps to prevent any person approaching the cartridge. He shall himself take proper shelter. If he has reason to believe that there is a possibility of the cartridge blowing through into an adjoining place, he shall send verbal warning to the persons in that adjoining place to take proper shelter.

9.—The person firing the cartridge shall, after it has been fired, make a careful examination of the place and see that it is safe in all respects.

10.—If the priming charge in the cartridge misses fire—

(a) The person firing the cartridge shall not himself approach or allow any other person to approach nor shall any person knowingly approach the hole or attempt to extract the cartridge from the hole until an interval has elapsed of not less than ten minutes.

(b) Before approaching or allowing anyone to approach the hole the person firing the cartridge shall disconnect the cable and the removable handle or plug from the firing apparatus and shall examine the cable and connections for any defect.

(c) If before the interval of ten minutes has elapsed the person firing the cartridge has occasion to leave the place, he shall fence off the place before leaving and attach to each fence a danger board indicating the presence of a miss-fired cartridge.

11.—Except in a case in which a cartridge is used in an emergency for fire-fighting, no person shall use any cartridge, heater, igniter or initiator in any other way than in accordance with the provisions of this Order.

12.—In any mine or part of a mine in which no explosive other than a permitted explosive is allowed to be used—

(a) The cartridges shall be fired only by an authorised person possessing the qualifications prescribed for shot-firers;

(b) Every such authorised person shall keep a daily record (in a book which shall be kept at the mine for the purpose in accordance with the provisions of Section 24 of the Act) of the cartridges fired by him;

(c) No cartridge shall be fired except by means of the electrical firing apparatus which shall be of a type for the time being approved by the Minister.

(d) Except with the permission in writing of the Inspector of the Division, no cartridge shall be fired in coal unless the coal has been holed to a depth greater than the depth of the hole;

(e) No cartridge shall be fired unless, immediately before it is to be fired, the authorized person has examined the place where it is to be fired and all contiguous accessible places within a radius of 20 yards from the place, and has found them clear of inflammable gas and in all respects safe for firing. The examination shall be made by means of a flame safety lamp, with which may be used an electric safety lamp, each lamp (except in small mines) to be of a type approved for that purpose; or by means of any other apparatus that may be approved by the Minister for the purpose:

Provided that the requirements of this sub-clause shall not apply to mines in which inflammable gas is unknown.

(f) Two or more cartridges, but not more than six in all, may be fired simultaneously, provided that they are fired electrically in series by means of an apparatus of a type for the time being approved by the Minister for that purpose.

13.—A copy of this Order shall be supplied to every person authorised under Clause 5 or Clause 12 (a), and a copy shall also be kept posted up in some conspicuous place at or near the mine where it may be conveniently read or seen by the persons employed.

FIREDAMP DETECTORS.

Coal Mines General Regulations (Firedamp Detectors), 1939, No. 322.

(As amended by the Coal Mines (Lighting and Contraband) General Regulations, 1949, No. 924.)

1.—(a) In every seam or part of a seam in which safety lamps are required by the Act or the Regulations of the mine to be used at the working faces, appliances for detecting the presence of inflammable gas (hereinafter called "detectors") shall be provided by the owner of the mine and used by the workmen employed.

(b) Every detector shall be of a type approved for the purpose by the Minister and the approval shall be subject to such conditions as the Minister may prescribe.

2.—At least one detector shall be provided as follows:—

- (a) in longwall workings, on each face for every eight or fraction of eight of the total number of workmen wholly or mainly employed at the face during the shift;
- (b) in other workings, in each working place at the face;
- (c) in every cross-measure drift or heading in stone;
- (d) in the return airways at every place where a man or set of men is engaged on repair work;
- (e) in conjunction with each electrical motor in operation, at or within 100 yards of, the working face.

3.—In any seam where the air current in the return airway from any ventilating district in the seam is found to contain more than one-half per cent. of inflammable gas on the average of six samples of air taken by an Inspector from the air current at intervals of not less than a fortnight—

- (a) the detector provided in conjunction with any electrical motor in operation at the working face shall be a detector of automatic type (hereinafter called "automatic detector");
- (b) at times when electric power is being used at any longwall face there shall be provided at that face at least one automatic detector, in addition to any automatic detector required under paragraph (a), out of every eight of all the detectors required to be provided, unless the manager has, within the preceding 12 months, proved, by means of at least six samples of air taken in the air current in the return airway from that face at intervals of not less than a fortnight or otherwise to the satisfaction of the Inspector of the Division, that the air current in that return airway normally contains not more than one-half per cent. of inflammable gas at a place within 50 yards of the working face.

Provided that nothing in this paragraph shall be deemed to require the provision on any shift of more than two automatic detectors on any single-unit conveyor face, nor more than four on any double-unit conveyor face, including automatic detectors provided in conjunction with electrical motors; and

- (c) where broken working is being carried on immediately adjoining the goaf as part of the bord and pillar or similar system of working, one out of every four of the detectors required to be provided in such broken workings shall be an automatic detector, but at least one automatic detector shall be provided in such broken workings at all times while work is being carried on.

4.—The manager shall:—

- (a) appoint a sufficient number of competent workmen (as hereinafter defined) and ensure to the best of his power that

each of the detectors required to be provided is in the personal charge of, and is properly used by, a competent workman.

Provided that no breach of this requirement shall be deemed to have arisen in consequence of failure to appoint a sufficient number of competent workmen if the manager proves that he has made the necessary arrangements for their training and reasonable efforts to induce the workers to take it up, and that the failure was due to causes over which he had no control;

(b) where flame safety lamps are provided as detectors, ensure that no workman provided with such a detector shall be provided with any other lamp except with the written permission of the manager; and

(c) where detectors of non-automatic type are provided, give directions to the competent workmen as to the minimum number of tests to be made daily.

5.—(a) It shall be the duty of every workman appointed under No. 4 of these Regulations to use the detector in accordance with the directions given to him by the manager, under-manager or other official of the mine; and where he is provided with a flame safety lamp as a detector he shall not, except with the written permission of the manager, use any other lamp as his working light.

(b) If a workman detects the presence of inflammable gas at any place where an electrical motor is in operation, he shall inform the person appointed to work the motor who shall cut off the power therefrom.

6.—For the purposes of these Regulations a competent workman is a workman who has been instructed in the method of using and is competent to use the type of detector with which he is provided.

If the detector is a flame safety lamp the competency of the workman to use it shall be tested (and thereafter certified in writing in the form prescribed by the Minister) by requiring him to show his ability to detect the presence of firedamp by recognising actual gas caps as they appear on the lowered flame of the type of safety lamp which he is to use as a detector.

In respect of any other type of detector the competency of the workman shall be tested and certified in such manner, if any, as the conditions of approval of that type of detector by the Minister may stipulate.

7.—The provisions of Section 34 of the Act (examination of safety lamps) shall apply to detectors provided under these Regulations and such provisions shall have effect as if incorporated in these Regulations.

8.—Nothing in these Regulations shall detract from any of the requirements of Sections 64 and 65 of the Act in regard to the inspection to be made by the deputies of a mine before the commencement of

work in a shift and in the course of each shift, nor from any of the provisions of the Explosives in Coal Mines Order, 1934, in regard to examinations for inflammable gas.

FIRE-FIGHTING.

Coal Mines General Regulations, 1938, No. 797.

PART I.

(The provisions of Part II of these Regulations have been revoked ; Part III relates to Telephones and Signalling Apparatus—see page 136.)

1.—(a) In every mine, other than small mines which are naturally wet throughout and mines of stratified ironstone, there shall be kept, ready for immediate use, at appropriate places in relation to each working face and along the main roads, a sufficient supply of suitable dust or sand and of portable fire-extinguishers, except in so far as water is provided at these places with equipment to serve the same purpose.

(b) At each place where dust, sand, or water is so kept, means shall be provided for readily conveying the material by hand and for using it for fire-fighting.

(c) At all times when a coal-cutting machine is in operation at any working face in which an ignition of inflammable gas has been, or, having regard to the nature of the strata, is liable to be, produced in the cut by its operation, effective means to prevent such ignition shall be provided on the machine ; or a supply of suitable dust or sand in a proper container, or a portable fire-extinguisher shall either be carried on the machine, or, if that is impracticable owing to the thinness of the seam, shall be kept at suitable intervals along the working face and at the roadhead at the intake end of the working face.

(d) Fire-extinguishers shall be examined and discharged and refilled as often as may be necessary to ensure that they are kept in good working order.

(e) Fire-extinguishers which are liable, when operated, to give off poisonous or noxious fumes shall not be provided or used underground.

2.—At every mine at which 100 or more persons are employed underground there shall also be provided and kept ready for immediate use :—

(a) a supply of water sufficient for the purpose of fighting fires underground and

(b) efficient means for conveying the water and delivering it promptly at adequate pressure and in adequate volume to all parts of the mine in ordinary use for working or travelling where fire is liable to occur.

Except in so far as provision is made so to deliver the water

through pipelines and hose extensions, it shall be so delivered from water tanks or barrels by portable manual force pumps and all equipment necessary for this purpose shall be provided and kept constantly ready for use.

Provided that the Inspector of the Division may exempt from any requirement of paragraph (b) of this Regulation any mine, or part of a mine, in respect of which he is satisfied that it is not reasonably practicable for the owner to comply with the requirement.

3.—Once every month all the equipment and material provided for fire-fighting shall be examined by a competent person appointed for that purpose who shall report in writing to the manager of the mine and shall specify in the report anything that he considers to be defective or lacking.

4.—The manager of every mine to which No. 2 of these Regulations applies shall adopt and enforce rules for the organisation and conduct of fire-fighting work and of fire-drills.

FIRST AID (SECTION 85).

Coal Mines General Regulations (First Aid), 1930, No. 91.

(As amended by the Coal Mines (First Aid) Amending Regulations, 1937, No. 548.)

1.—At every mine adequate arrangements shall be made in the manner hereinafter provided for rendering first-aid treatment to any person in or about the mine who may be injured or be taken ill.

PART I.

SURFACE ORGANISATION.

2.—At every mine where the total number of persons employed in any one shift exceeds 100 there shall be provided and maintained in good order a suitable first-aid room.

3.—The first-aid room shall be a room of easy approach separated from accommodation used for other purposes, and it shall be used only for first-aid and ambulance work. It shall be situated on the surface conveniently near the entrance to the mine, and shall have a floor space of not less than 100 square feet and shall be adequately heated and lighted and kept clean. It shall be distinguished by the words "First Aid" painted on the door.

4.—The first-aid room shall be adequately equipped and shall contain at least the equipment prescribed in the First Schedule to these Regulations.

5.—The first-aid room shall be placed under the charge of a competent person or persons appointed in writing by the manager. No person other than a qualified nurse or doctor, shall be appointed unless

he is the holder of a certificate of proficiency in first aid, from a Society or Body approved by the Minister.* The person or persons in charge shall always be readily available during working hours. The person or persons in charge shall keep a record of all cases treated at the first-aid room, and this record shall show at least the following information—the name of the person treated, the time and date of treatment, the nature of the injury or sickness and the name of the person by whom it was treated.

6.—At every mine where the total number of persons employed in any one shift does not exceed 100, and where a first-aid room is not provided, there shall be provided and kept constantly available for use a suitable place, under shelter, at the surface of the mine, where sick and injured persons can receive first-aid treatment and, when necessary, be protected from exposure until they can be removed in an ambulance. In this shelter, or in some other place in or about the mine, if more convenient, there shall be provided and maintained in good order the equipment prescribed in the Second Schedule to these Regulations.

These arrangements shall be placed in charge of a responsible person or persons appointed in writing by the manager. The person or persons in charge shall always be readily available during working hours.

PART II.

UNDERGROUND ORGANISATION.

7.—A sufficient number of the persons employed underground shall be men holding certificates of proficiency in first aid from a Society or Body approved by the Minister.* So far as practicable each of these men shall be included among a group of persons regularly working in the same part of the mine and known to them as a first-aid man. The number of first-aid men shall be not less than one in respect of 50 persons employed at any one time in any deputy's district, and not less than in the proportion of one to every 30 persons employed elsewhere underground.

A list of the first-aid men employed underground shall be kept posted up in the first-aid room or elsewhere at the surface of the mine.

8.—(a) Dressings and antiseptic for use therewith underground shall be provided by the owner and distributed in one or both of the following ways or in such other way as the Minister may approve:—

(i) Each person employed underground shall carry with him a first-aid outfit consisting of one large sterilized dressing, one small sterilized dressing and an ampoule of tincture of iodine (two per cent. alcoholic solution) or other antiseptic approved by the Minister. This outfit shall be securely packed to protect it against damage, dirt and wet;

* For list of Approved Societies and other bodies see page 195.

(ii) Each first-aid man employed underground in pursuance of Regulation 7 shall be provided with, and shall keep readily available underground, a first-aid box containing the articles prescribed in the Third Schedule to these Regulations.

(b) Every first-aid outfit and first-aid box provided in pursuance of this Regulation shall be taken to the surface at the end of the shift by the person in charge of it and shall there be examined and, when necessary, replenished by the person in charge of the first-aid room, or other competent person appointed in writing by the manager.

9.*—(a) The following equipment shall be provided by the owner and maintained at convenient places underground throughout the mine, to be known as first-aid stations :—

(i) Suitable stretchers. (Stretchers kept in wet or damp places shall be constructed of rot-proof or rust-proof materials).

(ii) Sets of splints (4½ ft., 3 ft., and 1 ft.) and kept with them the necessary triangular bandages for applying them ;

(iii) A tourniquet ;

(iv) A sufficient supply of sterilized burn dressings (where first-aid outfits are relied upon exclusively).

To be
kept in
suitable
boxes
marked
with
the
words
"First
Aid".

(b) It shall be the duty of the first-aid men employed underground to see that the equipment specified in this Regulation is kept in good order, and that it is replenished when necessary.

10.—The foregoing Regulations, 7, 8 and 9, shall not apply (a) to sinking pits, or (b) to mines where the total number of persons employed underground is less than 30, unless, in the opinion of the Inspector of the Division, the surface organisation and equipment are not sufficient in themselves to ensure prompt first-aid treatment underground, owing to the distance of the workings from the shaft or for other reasons.

PART III.

TRANSPORT FOR CASES OF ACCIDENT AND SICKNESS.

11.—The following further provision shall be made for the removal of serious cases of accident or sickness from the mine :—

(a) The owner of every mine shall make such arrangements as will provide an effective motor ambulance service which shall be used whenever necessary for the transport of sick and

* As amended by the Coal Mines (First Aid) Amending Regulations of 14 June, 1937. Boxes provided before that date may continue to be marked with a white cross on a red ground.

injured workers to hospital or to their homes. The service shall be so organised that a sufficient number of motor ambulances kept at all times in constant readiness and with a driver readily available shall be stationed at a base not more than ten miles by road from the mine and, if the total number of persons employed underground exceeds ten, in telephonic communication with the mine. If any question arises whether the number of motor ambulances stationed at any base is sufficient that question shall be decided by the Minister, but if the owner disputes the reasonableness of the decision, the matter shall be settled in manner provided by the Act for settling disputes. Provided that, in respect of mines where it is not reasonably practicable for the owner to comply with these requirements, the Inspector of the Division may sanction arrangements for the use of a motor ambulance stationed more than ten miles by road from the mine, and for summoning it otherwise than by telephone, or he may sanction such other not less effective arrangements as the owner may be able to make in the circumstances.

(b) At every shaft in which injured persons are raised and where the cage is not large enough to permit of a stretcher being laid flat, and at every shaft where persons are raised otherwise than in a cage, and at every sinking pit, there shall be provided and used a suitable jacket or attachment to minimise discomfort and prevent aggravation of an injury.

PART IV.

GENERAL.

12.—The manager of every mine or some other qualified person appointed by him in writing shall inspect, at intervals not exceeding six months, the accommodation, equipment and material provided at the mine, and the working of the organisation at the mine, for first aid and ambulance work ; and if on such inspection anything is found to be defective or lacking, it shall be remedied without delay.

13.—No breach of Regulation No. 7 shall be deemed to have arisen in consequence of failure to ensure that an adequate number of men are trained in first aid if the owner of the mine proves that he has made the necessary arrangements for training and reasonable efforts to induce the workers to take it up, and that the failure was due to causes over which he had no control.

14.—No person shall misuse, or, without authority, interfere with any appliance, equipment or material provided in pursuance of these Regulations.

If material is lost from, or damage occurs to, a first-aid outfit or portable first-aid box, the loss or damage shall be deemed to have been due to the default or neglect of the person in charge of it unless he proves that the loss or damage was due to no fault of his own and that he immediately gave notice of it to some responsible official.

15.—All materials for dressings provided in pursuance of these Regulations shall be those designated in, and of a grade or quality not lower than the standards prescribed by the current British Pharmaceutical Codex.*

FIRST SCHEDULE.

Equipment of First-Aid Room (Regulation 4).

- (a) A stretcher and a table of convenient height (about $2\frac{1}{2}$ ft.), large enough to stand the stretcher on;
- (b) a bench or chairs;
- (c) a glazed sink with cold water and hot water readily available;
- (d) soap, towels and a nail-brush;
- (e) a supply of suitable sterilized dressings,* bandages and adhesive plaster;
- (f) a supply of tincture of iodine (two per cent. alcoholic solution) or other antiseptic approved by the Minister, and of picric acid (one per cent. aqueous solution), a bottle of eyedrops (No. 1),
- (g) blankets and hot-water bottles;
- (h) sets of splints (4 $\frac{1}{2}$ ft., 3 ft. and 1 ft.) with the necessary triangular bandages for applying them, together with a supply of splint padding;
- (i) a supply of drinking water and a bottle of meat extract, coffee extract or other stimulant, and a drinking vessel,
- (j) a tourniquet, scissors, camel-hair brushes and safety-pins.

SECOND SCHEDULE.

Equipment at mines where a first-aid room is not provided (Regulation 6).

- 1. A stretcher (with blankets and hot-water bottles).
- 2. Sets of splints (4 $\frac{1}{2}$ ft., 3 ft. and 1 ft.) with the necessary triangular bandages for applying them, together with a supply of splint padding.
- 3. A first-aid box containing at least—
 - (a) a copy of the First-Aid Leaflet issued by the Ministry of Fuel and Power (M. & Q. Form 99);
 - (b) a sufficient supply of large and small sterilized dressings*;
 - (c) a sufficient supply of sterilized burn dressings*;
 - (d) a sufficient supply of sterilized cotton wool in $\frac{1}{2}$ -oz. packets; and of adhesive plaster;
 - (e) a supply of roller bandages;
 - (f) a supply of tincture of iodine (two per cent. alcoholic solution) or other antiseptic approved by the Minister;
 - (g) a bottle of meat extract, coffee extract or other stimulant, and a drinking vessel;
 - (h) a bottle of eyedrops (No. 1);
 - (i) a tourniquet, scissors and safety-pins.

Each first-aid box shall be marked with the words "First Aid"; and nothing except appliances or requisites for first aid shall be kept in it.†

THIRD SCHEDULE.

Prescription of first-aid box for use underground (Regulation 8 (a) (ii)).

The first-aid box shall contain at least—

- (a) a sufficient number (not less than three) of large sterilized dressings*;
- (b) a sufficient number (not less than six) of small sterilized dressings*;
- (c) a sufficient number of large sterilized burn dressings*;
- (d) a sufficient number (not less than three) of ampoules of iodine (two per cent. alcoholic solution) or other antiseptic approved by the Minister.

Each box shall be marked with the words "First Aid"; and nothing except appliances or requisites for first aid shall be kept in it.†

* The B.P.C. Standard dressings corresponding to the requirements of these regulations are: "Sterilized dressings"—B.P.C., Nos. 13, 14 and 15: small, medium and large plain wound dressings. "Sterilized burn dressings"—B.P.C., Nos. 11 and 12: medium and large burn dressings.

† See note * on page 89.

HORSES (SECTION 45 AND THIRD SCHEDULE).

Coal Mines General Regulations, 1922, No. 113.

1.—(Amends the *Third Schedule to the Coal Mines Act, 1911*—see page 24).

2.—(Amends S. 45(2) of the *Coal Mines Act, 1911*—see page 15.)

Coal Mines (Horses) General Regulations, 1949, No. 2330.

(Amends the *Third Schedule to the Coal Mines Act, 1911*—see page 24.)

Horses in Coal Mines (Glanders) Order, 1923, No. 313.

[*Made for purposes of paragraph 1 of the Third Schedule.*]

1.—For the purposes of paragraph 1 of the *Third Schedule to the Coal Mines Act, 1911*, in pursuance of the provisions of the *Mining Industry Act, 1920*, the Minister hereby prescribes that horses before being taken underground shall be tested for glanders by a duly qualified veterinary surgeon in the following manner :—

(i) The test shall consist of

- (a) the intradermic injection of mallein (eye test) ; or
- (b) the hypodermic injection of mallein followed by the taking of the temperature of the animal at the 6th, 9th, 12th, 15th and 20th hours respectively after the injection.

(ii) The animal to be tested shall rest for 24 hours before the test is applied.

(iii) The physiological variation of the animal's temperature shall be noted before the test is applied.

(iv) Neither test shall be applied to any animal while showing an abnormal temperature, nor shall the eye test be applied to any animal while showing a condition of the eye or its mucous membrane which might prejudice the test.

(v) The animal shall not be worked for a period of 30 hours after the injection.

(vi) The test shall not be applied to any animal which, after making reasonable inquiry, the veterinary surgeon knows to have received a mallein injection within the preceding month.

(vii) The mallein used for the test shall be obtained from the Royal Veterinary College, and shall be used in the dose specified by the College.

Explosives in Coal Mines (Horse Killers) Order, 1931, No. 521.

[*Made under S. 61 of the Coal Mines Act, 1911.*]

1.—Subject to the provisions of this Order, cartridges of explosive, not being a permitted explosive, may be used below ground in a safety

appliance for destroying horses or other animals, and may be taken below ground for that purpose, but for no other purpose.

2.—The safety appliance shall be of a type approved by the Minister for the purposes of this Order.* It shall be kept in the custody of a competent official appointed in writing by the manager, and shall only be used by or under the immediate supervision of that official.

3.—The explosive shall be in cartridges, shall be kept in storage under the sole control of the manager or some person appointed in writing by the manager, and shall only be issued from the place of storage to the official who has been appointed in writing by the manager to have charge of the safety appliance.

4.—Every person to whom cartridges are issued as aforesaid shall until the cartridges are about to be used, keep them in a suitable case or box, which shall be provided by the owner and shall be kept securely locked and separate from any other case or box containing explosive, and shall be used only for the storage of such cartridges.

5.—Every safety appliance to which this Order applies shall be cleaned out and examined immediately after it has been used, and shall be maintained in efficient and safe working order; and no person shall use below ground any such appliance which is out of order or appears to be in any way defective.

6.—Immediately before the safety appliance is to be fired below ground, an examination for inflammable gas shall be made in the surrounding area by a fireman, examiner, or deputy or other official qualified to make such an examination, and the provisions of Clause 6 (f) (i) of the Explosives in Coal Mines Order of the 1st September, 1913,† as amended by subsequent Orders, shall apply to the firing of the safety appliance as they apply to the firing of a shot.

LIGHTING.

Coal Mines (Lighting) General Regulations, 1947, No. 972.‡

PROVISIONS APPLICABLE TO ALL MINES.

1.—Except in so far as the manager satisfies the Inspector of the Division that it is not reasonably practicable, there shall be effectively

* The *Exit* Humane Horse Killer, Proprietors N. J. Muschamp & Company, Grove Street Works, Mansfield Woodhouse (Ammunition: Kynoch's—320 blank loaded with either 4 or 5 grains of black powder) has been approved, subject to its being used only with this ammunition.

† Now the Explosives in Coal Mines Order, 1934, as subsequently amended.

‡ Regulation No. 14 defines, for the purpose of these Regulations, certain words as follows:—

“auxiliary safety lamp” means a lamp of a type approved by the Minister under section thirty-three of the Act, for use as officials' lamps intended only for occasional or intermittent use and not capable of giving light for the whole of a shift;

“face” means, in relation to a seam, the exposed surface from which coal or other mineral is won; and means, in relation to a stone drift or a ripping, the exposed surface from which the stone is worked;

whitened, and so kept, the roof (or top) and sides of the following places in every mine, that is to say :—

- (a) such of the shaft insets and shaft sidings as are regularly used ;
- (b) the top and bottom of every permanent self-acting incline ;
- (c) every siding, landing, passbye, junction, offtake, place at which tubs are regularly coupled or uncoupled or regularly attached to or detached from a haulage rope, and place at which tubs are regularly filled mechanically, except in so far as any such place as aforesaid is within one hundred yards of the face ; and
- (d) every room and place made to house, and containing, any engine, motor, electrical transformer or switchgear.

2.—(1) At all times when any persons are working, or a shift of persons is passing, sufficient and suitable general lighting shall be provided and maintained below ground :—

- (a) at such of the shaft insets and shaft sidings as are regularly used ;
- (b) at the top and bottom of every permanent self-acting incline ;
- (c) at every siding, landing, passbye, junction, offtake and place at which tubs are regularly coupled or uncoupled or regularly attached to or detached from a haulage rope ;
- (d) at every place at which tubs are regularly filled mechanically; and
- (e) at every room and place made to house, and containing, any engine or motor :

except in so far as any such place as aforesaid is within fifty yards of the face in a road ventilated by intake air or is within three hundred yards of the face in any other road :

Provided that :—

- (i) the Inspector of the Division may require that such lighting shall be so provided and maintained at any such place as aforesaid which is within fifty yards or, as the case may be, three hundred yards of the face but is not, in either of such cases, within ten yards of the face ;
- (ii) the provisions of this paragraph shall not apply to a mine in which not more than ten persons are employed below ground or to a small mine exempted by the Inspector of the Division.

“ face working ” means, in relation to a face at which supports are systematically withdrawn, all that part of the mine between the face and the front line of the packs (if any) or the last row of supports for the time being maintained, whichever is the farther from the face ; and means, in relation to a face at which supports are not systematically withdrawn, all that part of the mine between the face and a line parallel to it and twelve feet distant from it ;

“ ripping ” means a place where material is worked from the roof or floor for the purpose of increasing the height of a road or of obtaining material for packing ;

“ road ” means any part of a passage which is maintained in connexion with the working of the mine, except that part which is within ten yards of the face.

(2) So far as reasonably practicable the lighting referred to in the preceding paragraph shall be so arranged as to prevent glare or eye-strain.

3.—Every person employed below ground at any place at which general lighting is provided shall, during the time when he is so employed, have a portable electric lamp or light with him for use in an emergency.

PROVISIONS APPLICABLE TO MINES IN WHICH SAFETY LAMPS ARE USED.

4.—The provisions of the four next following Regulations shall apply only in relation to a mine or part of a mine in which safety lamps are used.

5.—(1) Every safety lamp used :—

(a) between the first day of January, 1948, and the thirty-first day of December, 1948 (both inclusive), by any persons (other than a deputy) wholly or mainly employed in a face working, at a ripping or at a place where tubs are mechanically filled, and by any road repairer ; and

(b)* on and after the first day of January, 1949, by every workman, howsoever employed, below ground ;

shall be of a type approved by the Minister, the lighting performance of which when new shall, at the end of nine hours continuous burning under prescribed conditions of test, not be less than the prescribed standard.

(2) On and after the first day of January, 1949, every person ordinarily employed in haulage operations shall use an electric cap-lamp ; and every such person shall be provided with a proper fitting in which to carry such lamp.

6.—(1) Every bulb used in an electric safety lamp shall be of a type approved by the Minister, and shall be of the appropriate rated voltage, amperes and efficiency for the relevant type of lamp.

(2) Every bulb shall be marked in the prescribed manner.

7.—(1) Every safety lamp shall be provided by the owner of the mine.

(2) Every person to whom a safety lamp is issued shall carry and use it, together with any fittings provided for it, in a proper manner.

(3) Every person who is responsible for the care and maintenance of safety lamps and fittings shall take all such steps as are reasonably

* A temporary General Exemption has been granted by the Chief Inspector of Mines (under Regulation 12) to enable certain types of lamps which have a lighting performance below that of the standard prescribed under the Regulations to continue in use for the time being until the supply position improves.

practicable to ensure that they are maintained in good and proper order and condition.

(4) Without prejudice to the provisions of the last preceding paragraph, the safety lamps at a mine shall be maintained so that on taking from the lamps returned to the lamp room of the mine at the end of any shift not less than fifty lamps or one half of the total number of lamps so returned (whichever is the less), the lighting performance, when determined (after external cleansing) in the prescribed manner, of at least one half of the number of the lamps so taken is not less than the prescribed percentage (which shall not be more than seventy-five per centum) of the lighting performance as specified in the approval under section thirty-three of the Act of that type of lamp.

8.—The provisions of paragraph (1) of Regulation five, Regulation six and paragraph (4) of Regulation seven of these Regulations shall not apply :—

- (a) to an auxiliary safety lamp intended to be used only in conjunction with a safety lamp of a type approved by the Minister in pursuance of the provisions of the said paragraph (1) of Regulation five ;
- (b) to a safety lamp provided and used primarily for a purpose other than lighting ; or
- (c) to a safety lamp provided for use at a place where sufficient and suitable general lighting is provided ;
- (d) to a safety lamp approved for a particular purpose.

9.—The provisions of the two next following Regulations shall only apply in relation to a mine or part of a mine in which safety lamps are required to be used by the Act or the regulations of the mine.

10.—(1) Subject to the provisions of the Act and of Regulations made thereunder as to the use of electricity in mines, electric lighting from a source of electric power external to the lighting unit may be used :—

- (a) on any road ventilated by intake air, except within fifty yards of the nearest face from which coal or other mineral is being won ;
- (b) on any other road, except within three hundred yards of the nearest face from which coal or other mineral is being won ;
- (c) in any ventilation district :—
 - (i) in which electric power is in use in the face workings, on any road ventilated by intake air except within ten yards and on any other road, except within one hundred yards, of the nearest face from which coal or other mineral is being won ;

Provided that notice in writing of the introduction of electric lighting under this provision is sent forthwith to the Inspector of the Division ; and

(ii) on any road, except within ten yards of the nearest face from which coal or other mineral is being won, if authorised in writing by the Inspector of the Division.

(d) in any other place in the mine in which its use is permitted by the regulations of the mine.

(2) In any case in which electric lighting as aforesaid is used :—

(a) the pressure in the system shall not exceed 250 volts;

(b) if the system is polyphase the neutral point shall be earthed; if the system is not polyphase the mid-voltage point shall be earthed;

(c) appropriate precautions shall be taken to prevent damage to the apparatus from shot-firing and the lamp fitting shall be constructed so as to protect the lamp from accidental damage;

(d) all electric apparatus installed or used for lighting (not being apparatus so installed or used in any place more than three hundred yards from any face from which coal or other mineral is being won) shall be of a type approved by the Minister if it is installed or used in any part of a mine in which inflammable gas, although not normally present, is likely to occur in quantity sufficient to be indicative of danger.

(3) The provisions of sub-paragraphs (a) and (b) of the last preceding paragraph shall not apply to electric lighting by direct current in a seam in which such lighting is installed at the date of the coming into force of these Regulations.

11.—Electric lighting from a source of electric power enclosed in the lighting unit and electric lights which are fittings or accessories to machinery or electric plant (including signalling apparatus) and any other means of lighting not specifically mentioned in these Regulations, may be used, within such limits and subject to such conditions as the Minister may at any time prescribe whether generally or in respect of any particular mine or class or description of mines:

Provided that only such means of lighting and types of lighting unit and fittings and accessories are used as have been approved by the Minister.

GENERAL.

12.—The Chief Inspector of Mines may, except in any case in which provision is made by these Regulations for exemption being granted by the Inspector of the Division, exempt any mine or part thereof or any specified class or description of mines from the application of the provisions of these Regulations, or any of them, if he is satisfied that compliance therewith is inappropriate or not reasonably practicable in the circumstances of the case.

13.—The provisions of section one hundred and nineteen of the Act shall apply to any approval given by the Minister, and to any exemption granted by the Chief Inspector of Mines, and to any authorisation given by the Inspector of the Division, under these Regulations as they apply to any exemption granted by the Inspector of a Division.

PREScriptions UNDER THE ABOVE REGULATIONS.

In pursuance of Regulations 5(1), 6(2) and 7(4) the Minister, on 10 July, 1947, made the following prescriptions :—

A. Standard of Lighting Performance.

- (1) In the case of an electric cap lamp :—
 - (a) being a lamp fitted with a krypton filled bulb :—
 - (i) the mean spherical candle-power shall not be less than 1.2 ;
 - (ii) the candle-power shall not be less than 1.0 at any point within a solid angle of 100 degrees ; and
 - (iii) the ratio of the maximum candle-power to the mean candle-power over the angle of distribution of light shall not exceed 100 to 1.
 - (b) being a lamp fitted with an argon filled bulb :—
 - (i) the mean spherical candle-power shall not be less than 1.0 ;
 - (ii) the candle-power shall not be less than 1.0 at any point within a solid angle of 100 degrees ; and
 - (iii) the ratio of the maximum candle-power to the mean candle-power over the angle of distribution of light shall not exceed 100 to 1.
- (2) In the case of any other electric lamp :—
 - (a) being a lamp fitted with a krypton filled bulb :—
 - (i) the mean spherical candle-power shall not be less than 1.7 ; and
 - (ii) the mean candle-power over the horizontal angle of distribution of light shall not be less than 2.3.
 - (b) being a lamp fitted with an argon filled bulb :—
 - (i) the mean spherical candle-power shall not be less than 1.4 ; and
 - (ii) the mean candle-power over the horizontal angle of distribution of light shall not be less than 2.0.
- (3) In the case of a flame lamp :—
 - (i) the mean spherical candle-power shall not be less than 1.4 ; and
 - (ii) the mean candle-power over the horizontal angle of distribution of light shall not be less than 2.0.

B. Manner of Marking Lamp Bulbs.

- (1) There shall be marked distinctly and indelibly on the cap on every bulb :—
 - (i) the manufacturer's name or trade mark, or both ;
 - (ii) the rated voltage and amperage ; and
 - (iii) the outline of a Crown enclosing the letters M.F.P. in the following style :



- (iv) the letter "K", in the case of a krypton filled bulb.
- (2) If it is not possible to mark the cap of any bulb as aforesaid, it shall suffice to mark that cap as mentioned in (i), (ii) and (iv) of the preceding paragraph and to mark, by etching or by some other distinct and indelible means, the glass of that bulb as mentioned in (iii) of that paragraph.

C. Method of Determining Lighting Performance and the Maintenance Standard.

- (1) The lighting performance as therein mentioned shall be determined :—
 - (a) in the case of a cap lamp, by measuring, with a portable photometric integrator, the mean spherical candle-power ;
 - (b) in the case of any other description of lamp, by measuring, with a portable photometer designed for that purpose, the maximum horizontal candle-power.
- (2) The percentage of the lighting performance therein mentioned shall be sixty.

The Coal Mines (Pneumatic Lighting Unit) Order, 1948, No. 1918.

[*Made in pursuance of No. 11 of the Coal Mines (Lighting) General Regulations, 1947.*]

1.—The limits within which, and the conditions subject to which, an electric lighting unit operated by a generator enclosed in the unit and driven by compressed air (in this Order referred to as a "pneumatic unit"), being of a type, and having fittings and accessories of a type, approved by the Minister, may be used shall be as provided in this Order.

2.—Where any pneumatic unit, or any part of, or any automatic safety device attached to, any pneumatic unit, is found to be defective, that unit shall not be used until the defect has been remedied by an appointed person as specified in paragraph (1) of the next following article.

3.—(1) No person not appointed in writing by the manager as a person competent to carry out work on pneumatic units shall dismantle, repair, alter or adjust any pneumatic unit, or tamper with any automatic safety device attached to any such unit.

(2) The air pressure shall not be turned on in a pneumatic unit unless the unit is fully assembled and closed ; and no unit in which the air pressure has not been turned off shall be opened.

4.—Once at least in every three months :—

(a) every pneumatic unit shall be cleaned and thoroughly overhauled in a workshop appointed by the manager for repairs to pneumatic units ;

(b) a test shall be made of the unit, and of the effective working condition of every automatic safety device attached to it, and particulars thereof recorded in a book kept at the mine for the purpose.

5.—(1) In this Order the expression "pneumatic unit" has the meaning assigned by article one.

Coal Mines General Regulations (Lighting), 1934, No. 562.

PART I.

1-6.—(*Revoked and superseded by the Coal Mines (Lighting) General Regulations, 1947—page 93.*)

PART II.

7.—(Superseded by the Coal Mines (Lighting and Contraband) General Regulations, 1949—page 101.)

8.—(Revokes No. 78 and paragraph (iv) of No. 132 of the General Regulations of 10th July, 1913.)

9.—(Lapsed.)

10-14.—(Revoked and superseded by the Coal Mines (Lighting) General Regulations, 1947—page 93.)

PART III AND SCHEDULES.

(Revoked and superseded by the Coal Mines (Lighting) General Regulations, 1947—page 93.)

Coal Mines General Regulations (Safety Lamps), 1927, No. 1155.

1.—(Amends S. 33 of the Coal Mines Act, 1911—see page 11.)

2.—(Amends S. 34 of the Coal Mines Act, 1911—see page 11.)

Safety Lamps (Re-lighting) Order, 1929, No. 1182.

(As amended by the Safety Lamps (Re-lighting) Order, 1938, No. 1408.)

[Made in pursuance of S. 33 and S. 35 of the Coal Mines Act, 1911, and of the Coal Mines General Regulations (Safety Lamps), 1927.]

USE OF FLAME SAFETY LAMPS FITTED WITH SELF-CONTAINED RE-LIGHTING DEVICES.

1.—The lamps shall only be given out to and shall only be used by—

(a) firemen, examiners and deputies ;

(b) shot-firers appointed in pursuance of Part II of the Explosives in Coal Mines Order ;

(c) the manager and under-manager and such other responsible officials of the mine and responsible persons inspecting or surveying the mine (including workmen's inspectors appointed under Section 16 of the Act) as the manager may specify by authority in writing ;

(d) H.M. Inspectors of Mines.

2.—The re-lighting device shall be operated underground only when it is required for re-lighting the lamp and only by the person to whom it is given out, and the key for operating the re-lighting device shall at all times remain in his personal custody while he is underground.

3.—Before proceeding to re-light underground a lamp which has been extinguished as the result of a fall or a blow, or in any other manner likely to have caused damage to it, the person using the lamp shall examine it as carefully as possible. He shall not attempt to re-

light the lamp if on such examination the lamp appears to him to be or likely to be unsafe or defective, nor shall he attempt to re-light the lamp in any place where he has reason to suspect the presence of inflammable gas.

4.—On every occasion after re-lighting the lamp underground the person who is using the lamp shall examine it, and if it appears to him to be or likely to be unsafe or defective he shall carefully extinguish the light and shall not attempt to re-light the lamp again during his shift.

5.—Every person who is using a lamp fitted with a self-contained re-lighting device shall return it to the surface lamp-room when he has completed his shift and shall at the same time report any defect in the lamp which he may have noticed during the shift. The lamp shall be taken apart at the surface lamp-room, the re-lighting device shall be attended to and tested in operation and, after this has been done, the parts of the lamp (including the gauzes, the glass and the top of the oil vessel) shall be thoroughly cleaned. The re-lighting device shall not be operated after the lamp has been cleaned except by the competent person appointed under Section 34 (1) (i) of the Act (who shall operate it only for the purpose of verifying and to the extent necessary to verify that it is in good working order) and by the person who is to use the lamp underground. A lamp with a re-lighting device which is not in good working order shall not be given out or taken underground.

6.—No re-lighting device or component part of a re-lighting device shall be used which is not of a make and type approved for the purpose by the Minister.

7.—A copy of this Order* shall be kept posted up in the lamp-room and shall be supplied to every person who uses a lamp fitted with a self-contained re-lighting device and to every person who is responsible for cleaning, repairing or examining such a lamp or any part of it.

**Coal Mines (Lighting and Contraband) General Regulations, 1949,
No. 924.**

1.—(Amends S. 32 of the Coal Mines Act, 1911—see page 10.)

2.—(Amends S. 35 of the Coal Mines Act, 1911—see page 13.)

3.—(Amends No. 3 of the Coal Mines General Regulations (Firedamp Detectors), 1939—see page 83.)

* The prescribed form of Notice is M. & Q. Form No. 98.

LOCOMOTIVES.

Coal Mines (Locomotives) General Regulations, 1949, No. 923.

(Note.—*In their application to mines of stratified ironstone and shale, these Regulations are subject to the modifications specified in the Iron-stone and Shale Mines (Locomotives) General Regulations, 1950, which are indicated in the text here by the words in square brackets.*)

PART I.

1-2.—(Amends S. 42(4) and S. 58 of the Coal Mines Act, 1911—see pages 14 and 18.)

PART II.

3.—(Revokes No. 136 of the General Regulations, 1913, but any consent given under Regulation 136 (b) is deemed to be a consent given under No. 4 of the Locomotives Regulations.)

PART III.

DESIGN OF LOCOMOTIVES AND SELECTION OF ROADS.

4.—(1) No locomotive for which motive power is supplied by electric power on the trolley-wire system, or by any internal combustion engine other than a diesel engine, shall be used in any mine except with the consent of the Minister; but, save as aforesaid, and subject to the provisions of these Regulations, any locomotive mentioned in subsection (1) of section fifty-eight of the Act may be so used with the consent of the Inspector of the Division.

(2) Where any consent of an inspector of a division under the foregoing paragraph is withheld, or where such a consent is after being granted withdrawn, the manager may refer the matter to be determined in manner provided under the Act for settling disputes.

5.—(1) No locomotive shall be used in any mine unless it is constructed in accordance with the provisions of this Regulation.

(2) The locomotive and each of its accessories shall, so far as practicable, be so constructed of non-inflammable material that no risk of fire is created; and any inflammable material shall, unless the Minister approves otherwise, be shrouded with a substantial metallic covering.

(3) If motive power is supplied by an internal combustion engine, effective provision shall be made so that:—

- (a) air entering the engine is cleaned;
- (b) exhaust gases are cooled and diluted; and
- (c) the emission of flame or sparks is prevented.

(4) In any mine or part of a mine in which safety lamps are required by the Act or the regulations of the mine to be used (otherwise than in an intake airway more than three hundred yards from the face)

any locomotive shall, in so far as concerns the matters aforesaid, and the construction of the locomotive to prevent the ignition of inflammable gas present in the air, be of a type approved by the Minister.

6.—That part of every storage battery locomotive in which the battery is carried shall be so designed and constructed as to resist rough usage and to be properly ventilated.

7.—Every locomotive used in any mine shall be provided with :—

(a) a braking system which can, whether or not any other device for applying the brakes is fitted, be applied by direct mechanical action ;

(b) means for applying sand to the rails ;

(c) unless the locomotive cannot develop more than twenty-five horse power and cannot on a level road exceed a speed of eight miles per hour, or was in use before the date of the coming into operation of these Regulations and cannot reasonably be so provided, a combined speed and mileage indicator so placed as to be readily seen by the driver ;

(d) a headlight capable of showing any obstruction in the road ahead within two hundred feet of the locomotive :

Provided that where any locomotive in use at the date aforesaid had before that date been equipped with a headlight, that locomotive may with the consent of the Inspector of the Division be used as so equipped ;

(e) an adequate warning signal ;

(f) a suitable portable fire extinguisher ;

(g) a seat for the driver ; and such an arrangement of the controls that the driver can see ahead without leaning out of the locomotive ;

(h) a portable lamp for use in emergency.

8.—No locomotive shall be used where the gradient exceeds one in fifteen.

9.—(1) The provisions of this regulation shall apply to any road in which a locomotive is used, so however that the Inspector of the Division may grant exemption from any of them where compliance is not reasonably practicable or not requisite for safety.

(2) The track shall be ballasted, and where necessary drained.

(3) The weight of rail per yard of rail shall not be less :—

(a) if the road is used only for the carriage or haulage of stores or supplies for the working of the mine and no locomotive therein exceeds five tons in weight, than twenty-eight pounds ;

[The corresponding provision applicable to mines of stratified iron-stone and of shale is :—

(a) if no locomotive in the mine exceeds three and one half tons in weight, than twenty-four pounds ;]

(b) in any other case, than forty pounds, or ten pounds with an addition of five pounds for each ton of weight on one pair of wheels, whichever is the greater.

(4) Every track shall be so constructed that :—

(a) the distance between the centres of adjacent sleepers does not exceed two feet nine inches ;

[The corresponding provision applicable to mines of stratified iron-stone and of shale is :—

(a) the distance between the centre of adjacent sleepers does not exceed :—

(i) if no locomotive in the mine exceeds three and one half tons in weight, three feet ; or

(ii) in any other case, two feet nine inches ;]

(b) rail joints are secured by suitable fishplates having at least four bolts.

(5) Curves shall be of such radius as is safe ; and either or both of the following precautions shall where necessary be taken, that is to say, raising of the outer rail and provision of a check rail.

(6) No locomotive shall be used in any road where there are not, after allowing for swing of the locomotive and trucks, clear spaces not less in extent than the following, that is to say :—

(a) below the roof or its supports :—

(i) if the locomotive is fitted with a covered cab, one foot ;

(ii) in any other case, so much as to enable the driver to stand upright in the locomotive ;

[The corresponding provision applicable to mines of stratified iron-stone or of shale is :—

(a) below the roof or its supports :—

(i) in a road in which any locomotive was used, or for use in which any locomotive was required to be delivered under a contract made, before the first day of May, nineteen hundred and forty-nine, one foot ;

(ii) if the locomotive is fitted with a covered cab, one foot ;

(iii) in any other case, so much as to enable the driver to stand upright in the locomotive ;]

(b) on that side of the track on which refuge holes are provided, two feet ;

(c) on the side of the track opposite to the refuge holes :—

- (i) where there are not more than two tracks, one foot ;
- (ii) in any other case, two feet ;

(d) between any two adjacent tracks (if there are more tracks than one) so much as to afford a clearance of at least one foot between any locomotive or truck on one and any locomotive or truck on the other of them.

10.—The manager shall :—

(a) determine in respect of each road the maximum load to be hauled by any locomotive and the maximum speed of any train ; and cause notices specifying the same to be posted at appropriate places ;

(b) cause warning notices drawing attention to any necessary precautions to be posted in the roads at appropriate places ; and

(c) give to each driver directions in writing with respect to loads, speed and all precautions necessary for safe running.

PART IV.

VENTILATION.

11.—In every mine or part of a mine in which safety lamps are required by the Act or the regulations of the mine to be used, determinations shall be made in accordance with the provisions of the four next following regulations of the firedamp content in every road or part of a road in which any locomotive is used :

Provided that the Inspector of the Division may exempt from the requirements of this Regulation any road or part of a road in which he is satisfied that the normal firedamp content is not such as to make regular determinations necessary : and

Provided also that in any main intake airway beginning at a shaft or outlet to the surface, no determination need be made at any point more than three hundred yards from any face.

12.—Determinations shall be made by a competent person appointed in writing by the manager, who shall :—

(a) use apparatus of a type approved by the Minister ; or

(b) take samples of air, which shall be analysed within four days of being taken.

13.—The points at which determinations are made shall be :—

(a) at each end of each road or part of a road in which any locomotive is used ;

(b) at such other points as may be fixed by the manager ; so however that the manager shall, if the Inspector of the Division so require, vary any points so fixed or fix one or more additional points.

14.—(1) Subject to the provisions of the next following paragraph, determinations at each place shall be made once at least in every week at the time when the firedamp content is likely to be greatest, so however that, when at any place :—

(a) a firedamp content exceeding decimal eight per centum is shown, determinations at that place shall be made at intervals not exceeding twenty-four hours for so long as the firedamp content shown at that place exceeds decimal eight per centum, and for the seven next following working days ; and

(b) no determination has during the last preceding month shown a firedamp content exceeding :—

(i) in the case of an intake airway, decimal two per centum ;

(ii) in the case of a return airway, decimal six per centum ;

determinations may be made at that place once in every month.

(2) Where any alteration in any ventilating arrangements is likely to affect substantially the quantity of air circulating in any road or part of a road in which any locomotive is used, determinations shall be made therein as soon as practicable after the said alteration.

15.—Particulars of every determination made shall be recorded forthwith in a book to be kept at the mine for the purpose.

16.—Where at any place a determination shows a firedamp content exceeding one and one quarter per centum, or any indication of inflammable gas is shown in any flame safety lamp :—

(a) the person making that determination, or the person using the lamp, as the case may be, shall immediately inform the official in charge of the district ; who shall after verifying the presence of inflammable gas as aforesaid discontinue the use of every locomotive in that part of the road ;

(b) no locomotive shall after the said discontinuance be used in that part of the road except by direction of the manager when the manager is satisfied that the firedamp content therein has been reduced below one and one quarter per centum ;

(c) the manager shall as soon as practicable report the said discontinuance to the Inspector of the Division.

PART V.

WORKING OF LOCOMOTIVES AND ENGINES.

17.—(1) Each haulage road in which any locomotive is used in any mine shall be placed in the charge of a competent person appointed in writing by the manager.

(2) Once at least in every twenty-four hours each such road shall be inspected by, or under the supervision of, the person aforesaid with particular regard to :—

- (a) clearance and freedom from obstructions ;
- (b) the state of the track ;
- (c) the state of the roof and sides ;
- (d) ventilation and absence of inflammable gas ;
- (e) coal dust ;
- (f) general safety.

18.—(1) Once at least in every twenty-four hours each locomotive in any mine shall be examined by a competent person appointed in writing by the manager.

(2) Once at least in every seven days each such locomotive shall be examined by an electrician and mechanic, appointed in writing by the manager, who shall ensure that :—

- (a) every part requiring to be cleaned is properly cleaned ;
- (b) the locomotive is in all respects in proper working order.

19.—(1) Once at least in every seven days the braking system of each locomotive in any mine shall be examined and tested by a competent person appointed in writing by the manager ; and the said test shall include applications of the brakes :—

- (a) when the locomotive is moving, by direct mechanical action and by each other means provided ; and
- (b) when the locomotive is at rest with the engine stopped, by any means provided other than direct mechanical action and for a period of at least ten minutes.

(2) Immediately after any repairs or adjustment to the braking system of any locomotive, an examination and test shall be made as provided in the foregoing paragraph.

20.—Any person making any inspection, examination or test in pursuance of the three last foregoing regulations shall forthwith record particulars thereof in a book to be kept at the mine for the purpose.

21.—No locomotive shall be used in any mine if :—

- (a) it has any defect liable to affect its safe running ; or
- (b) it is not maintained in proper working order or replenished with all necessary oil and consumable stores.

22.—Any protective device fitted to an exhaust opening of an internal combustion engine shall, whenever necessary, and in any event not less often than once in every period of twenty-four hours during which the engine has been run (or, if, in relation to any specified device, the Minister has specified longer periods, not less often than once in every

such period), be thoroughly cleaned or replaced by a like device in clean condition.

23.—(1) No locomotive shall in any mine be operated, except for repairs or tests, otherwise than by an appointed driver, being a person certified to be competent without supervision to drive a locomotive of the type concerned, and, if the locomotive is used for the haulage of persons, a person not less than twenty-one years of age, [or, *in the case of any mine of shale, eighteen years of age.*]

(2) In this regulation the expression "appointed driver" means a person appointed by the manager to be a driver of locomotives; and the expression "certified" means certified by the person appointed by the manager to supervise the competence of all drivers of locomotives in that mine.

24.—(1) Except during shunting operations:—

(a) no locomotive shall be used in any mine for moving any truck otherwise than by hauling from in front;

(b) no truck containing timber or other materials exceeding in length the length of the truck shall be coupled next to the locomotive or to any truck in which any person is being conveyed.

(2) A red light visible at a distance of two hundred feet shall be attached at the rear of the last truck of each train in any mine, and at the rear of each unattached locomotive.

[*The corresponding Regulation applicable to mines of stratified iron-stone or of shale is:—*

24.—(1) *No locomotive shall be used in any mine for moving any truck otherwise than by hauling from in front except:—*

(a) *during shunting operations, or*

(b) *in a road in which one or more locomotives were used for moving material before the first day of May, nineteen hundred and forty-nine;*

and, where any truck is moved otherwise than by hauling from in front by virtue of sub-paragraph (b), a white light visible at a distance of two hundred feet shall be attached at the front thereof (or, if more than one truck is being moved by the same locomotive, at the front of the leading truck):

Provided that nothing in this paragraph shall apply to the use of any locomotive to move a single truck in a working place distant from the face less than four hundred yards.

(2) *Except during shunting operations, no truck containing timber or other materials exceeding in length the length of the truck shall be coupled next to the locomotive or to any truck in which any person is being conveyed.*

(3) *A red light visible at a distance of two hundred feet shall be attached at the rear of the last truck of each train in any mine, and at the rear of each unattached locomotive:*

Provided that this paragraph shall not apply to any train or locomotive distant from the face less than four hundred yards.]

25.—Except with the permission of the manager, no person shall be on any locomotive in any mine when it is in motion unless he is :—

- (a) the driver of the locomotive ; or
- (b) a person engaged in shunting operations for which the locomotive is at the time being used ; or
- (c) a person appointed under regulation twenty-three of the General Regulations to accompany and have charge of a train drawn by the locomotive ; or
- (d) a person engaged in maintaining or testing the locomotive.

26.—The driver of a locomotive shall not leave it unattended away from the place where it is housed when not in use, unless he has ensured that it cannot be set in motion by any unauthorised person.

PART VI.

ADDITIONAL PROVISIONS—DIESEL LOCOMOTIVES.

27.—Every diesel locomotive in any mine shall, when not in use, be housed in a suitable housing station :—

- (a) provided with two means of egress ;
- (b) ventilated by a through current of air sufficient to render the exhaust gas harmless while the engine is being run in the housing station ;
- (c) constructed of non-inflammable material ;
- (d) having a floor of smooth concrete ;
- (e) fitted with an inspection pit or other effective means of inspecting the locomotive from below ; and
- (f) kept provided with equipment for extinguishing fire.

28.—(1) No diesel locomotive shall be replenished with fuel oil in any mine except at a filling station appointed by the manager.

(2) The provisions of sub-paragraphs (a), (b), (c), (d) and (f) of the last foregoing regulation shall apply to any filling station as they apply to a housing station, so however that the floor of each filling station shall be provided with a sill ; and each filling station shall be so equipped that the spilling of oil is, so far as practicable, prevented.

(3) Any oil spilt shall forthwith be taken up with a non-inflammable absorbent, which shall be deposited in a fireproof receptacle and as soon as practicable removed from the mine.

(4) No person shall smoke, or use any light or lamp other than a locked safety lamp or an electric lamp adequately protected, in any filling station, or within ten yards of any filling station.

[The following proviso to paragraph (4) applies only to mines of stratified ironstone or of shale :—

Provided that this paragraph shall not apply in relation to any filling station constructed before the first day of May, nineteen hundred and forty-nine, in a mine in or for which any diesel locomotive was then in use or was required to be delivered under a contract made before that date.]

(5) No oil shall be taken from any container in a filling station while any internal combustion engine in the filling station is running.

29.—(1) No oil shall be used in any mine for supplying motive power to any diesel locomotive which does not comply with the standard specified for Class "A" fuel in the "British Standard (Fuels for Oil Engines)" as published by the British Standards Institution.

(2) No oil for use as aforesaid shall be taken below ground except in an adequate container which does not leak.

(3) No such oil shall at any time be stored below ground unless :—

(a) it is, until transfer into the tanks of a locomotive, stored in a filling station in an adequate container which does not leak ;

(b) the quantity thereof does not exceed the quantity which with any oil then in the tanks of the locomotive or locomotives for which it has been brought below ground will according to the normal user of those locomotives be consumed within the forty-eight hours next following.

30.—A copy of the two last foregoing regulations shall be kept posted and clearly visible in each filling station.

31.—A diesel locomotive shall be deemed to have a defect liable to affect its safe running if gas from its exhaust is found to contain more than two parts of carbon monoxide, or one part of oxides of nitrogen, per thousand.

[The corresponding Regulation applicable to mines of stratified ironstone or of shale is :—

31.—A diesel locomotive shall be deemed to have a defect liable to affect its safe running if gas from its exhaust is found to contain more—

(a) if the locomotive was in use before the first day of May, nineteen hundred and forty-nine, or was required to be delivered under a contract made before that date, than four parts of carbon monoxide, or one and one half parts of oxides of nitrogen, per thousand ;

(b) in any other case, than two parts of carbon monoxide, or one part of oxides of nitrogen, per thousand.]

32.—(1) The engine of a diesel locomotive shall not be kept running in a mine when the locomotive is stationary except :—

(a) during brief halts while in use ; or

(b) while being tested.

(2) No diesel locomotive shall be used in any place where there is not for the time being a sufficient current of air to render the gas from its exhaust harmless.

(3) Where in any working place or road in which diesel locomotives are in use there is found in the general air a concentration of carbon monoxide greater than :—

(a) fifty parts per million, immediate steps shall be taken to disperse the said concentration ;

(b) one hundred parts per million, the operation of every diesel locomotive in the district shall be discontinued until it is determined that the concentration of carbon monoxide in the general air at that place does not exceed fifty parts per million.

33.—(1) In the case of each diesel locomotive in use in any mine a sample of the gas from the exhaust when the engine is being run :—

(a) at maximum speed on full load ;

(b) at normal idling speed on no load ;

shall be taken and analysed once at least in every three months.

(2) A sample of the general air at each appointed place shall be taken and analysed once at least in every month.

(3) In this regulation the expression "appointed place" means a place appointed by the manager, so however that the manager shall, if the Inspector of the Division so require, vary any appointed place, or appoint one or more additional places ; and there shall be sufficient appointed places to ensure that any harmful concentration in the general air in any working place or road in which any diesel locomotive is being used shall be detected.

(4) Particulars of the analysis of each sample taken in pursuance of paragraph (1) or (2) of this regulation shall be recorded in a book to be kept at the mine for the purpose.

PART VII.

ADDITIONAL PROVISIONS—STORAGE BATTERY LOCOMOTIVES.

34.—(1) No battery of a storage battery locomotive shall be charged or changed below ground in any mine except at a place appointed for that purpose by the manager.

(2) Every place so appointed for charging (in these Regulations referred to as a "charging station") shall be :—

(a) constructed of non-inflammable material ;

(b) ventilated by a through current of air sufficient to render gases harmless ;

- (c) so fitted that in relation to the said current of air :—
 - (i) the charging apparatus is on the intake side of the battery racks ;
 - (ii) the current passes from the battery racks directly into a return airway ;
- (d) so equipped that the spilling of water or electrolyte is, so far as practicable, prevented ; and
- (e) kept provided with equipment for extinguishing fire.

35.—(1) No person shall smoke, or use any light or lamp other than a locked safety lamp or an electric lamp adequately protected, in any charging station, or within ten yards of any charging station.

(2) Any water or electrolyte spilt on any battery in a charging station shall forthwith be removed.

36.—A copy of the two last foregoing regulations shall be kept posted and clearly visible in each charging station.

PART VIII.

MISCELLANEOUS.

37.—The provisions of Parts III to VI both inclusive of these Regulations relating to the use of any locomotive in any mine shall be construed as applying only to the use of that locomotive below ground therein.

38.—(1) Except where exemption from compliance may be granted by the Inspector of the Division, the Chief Inspector of Mines may exempt any mine or part of a mine, or any class or description of mines, from compliance with any provision of these Regulations where compliance in the particular case is not reasonably practicable or not requisite for safety.

MEDICAL EXAMINATIONS.

The Coal Mining (Training and Medical Examination) Order, 1944, No. 7.

(As amended by the Coal Mining (Training and Medical Examination) Orders of 1945 No. 1049, 1946 No. 1579 and 1946 No. 2242.)

[Made under Regulations 55AA and 58AE of the Defence (General) Regulations, 1939.]

1-6.—*(Revoked and superseded by the Coal Mines (Training) General Regulations, 1945—page 138.)*

MEDICAL EXAMINATION.

7.—(1) The following provisions of this Article shall have effect as respects persons below the age of eighteen years in employment in coal

mining who enter such employment after the coming into force of this Order and have not been examined in accordance with arrangements made by the Minister of Labour and National Service for the purposes of this Order.

A certificate of the Minister of Labour and National Service that a person to whom the certificate relates had not, at any date specified in the certificate, been examined in accordance with such arrangements as aforesaid shall be conclusive evidence of the facts certified in any proceedings for a contravention of this Article.

(2) The Minister of Labour and National Service may give notice to the employer of any such person as aforesaid that arrangements have been made by the said Minister for the medical examination of the said person at a date specified in the notice.

(3) Where a notice has been given under the last preceding paragraph, if at any time after the date specified in the notice the Minister of Labour and National Service gives a direction to an employer of the person to whom the notice relates—

(a) that by reason of the said person not having been medically examined in accordance with arrangements made by the Minister, or having been so examined and having been found to be unfit for employment in coal mining, he is not so to be employed after the expiration of fourteen days from the receipt of the direction ; or

(b) that by reason of the said person having been so examined and having been found to be unfit for employment in coal mining on work of any specified class, he is not so to be employed as aforesaid on work of that class,
the employer shall comply with the direction.

(4) The register* to be kept under section ninety-four of the Coal Mines Act, 1911, for any coal mine shall include the following particulars as respects any person employed in or about the mine who falls within paragraph (1) of this Article, whether apart from this provision the inclusion of those particulars, or particulars of the person to whom they relate, would be required or not, that is to say—

(a) the name, age and address of the said person, and the date on which he was first employed in or about that mine ;

(b) if the Minister of Labour and National Service has notified to the employer that the said person has been examined on a specified date in accordance with such arrangements as are mentioned in paragraph (2) of this Article and the result of the examination, or that he has failed to be so examined, the facts so notified.

7a.—Every person who, after the coming into force of this Order† employs in coal mining a person below the age of 18 years shall,

* See M. & Q. Form 20.

† S. R. & O., 1945, No. 1049, which came into force on 24 August, 1945.

within four days of the day on which such person was first so employed by him, deliver to the manager or person acting as manager of the local office of the Ministry of Labour and National Service nearest to the mine at which the person is employed a notification in writing of the name, age and address of such person and of the name and locality of the mine at which he is so employed.

7b.—In relation to a mine in any of the following counties, that is to say, Brecon, Carmarthen, Glamorgan, Monmouth and Pembroke, the provisions of Articles 7 and 7A of this Order shall have effect subject to the following modifications :—

The words “ below the age of eighteen years ” and “ below the age of 18 years ” respectively shall be omitted.

8.—(1) In this Order—

References to employment in coal mining shall be construed as references to employment in or about a coal mine.

OFFICIALS AND INSPECTIONS.

Coal Mines (Officials and Inspections) General Regulations, 1951, No. 848.

PART I.

APPOINTMENT AND GENERAL DUTIES OF DEPUTIES.

1.—(1) (*Amends S. 14(1) and (2) of the Coal Mines Act, 1911—see page 6.*)

(2) Amendments consequential on the provisions of the foregoing paragraph shall be made—

(a) to the Act, as specified in the first part of the schedule to these regulations*; and

(b) to the several regulations mentioned in the first and second columns of the second part of the said schedule † as specified in relation to them respectively in the third and fourth columns of that part.

(3) Every person appointed before the commencement of these regulations to be a fireman or examiner shall, for all purposes of the Act, be deemed to have been appointed a deputy.

DEPUTIES' DISTRICTS AND MEETING STATIONS.

2.—(*Amends S. 14(3) of the Coal Mines Act, 1911—see page 6.*)

3.—(*Amends S. 63 of the Coal Mines Act, 1911—see page 19.*)

* Part I of the Schedule is reproduced at the end of Part I of this volume.

† The amendments made by Part II of the Schedule are incorporated in the revised versions of the Regulations which appear in this volume.

4.—(1) The manager shall keep in the office at the mine one or more plans, on a scale not less than six inches to one mile, showing—

- (a) the limits of each deputy's district as defined by him, and
- (b) each meeting station as appointed by him,

and shall within seven days of any definition or appointment by him varying any such district or station cause the relevant plan to be revised accordingly.

(2) The provisions of subsections (4) and (5) of section twenty of the Act shall with the requisite modifications apply in relation to any plan kept in pursuance of this regulation as they apply in relation to plans kept in pursuance of subsection (1) of that section.

PRE-SHIFT AND OTHER INSPECTIONS.

5.—(Amends S. 64 of the Coal Mines Act, 1911—see page 20.)

6.—(Amends S. 65 of the Coal Mines Act, 1911—see page 21.)

MAINTENANCE OF EQUIPMENT, ETC.

7.—The deputy in charge of a deputy's district shall take all reasonable steps to ensure that—

- (a) all equipment, apparatus and plant in use in that district are maintained in good order and safe condition ; and
- (b) if any equipment, apparatus or plant is found by or reported to him to be in an unsafe condition, it is not used while in such a condition.

8.—Where sheets or ducts are required to be used for the ventilation of any working place, the deputy in charge of the district shall ensure that they are so placed and maintained that an adequate amount of air reaches that place.

DANGEROUS PLACES.

9.—The deputy in charge of any district shall ensure that every place therein which by reason of the presence of gas, or for any other cause, is dangerous is kept so fenced off at each approach that it cannot be inadvertently entered, and that each such fence is marked with a danger sign provided by the owner.

CONTROL OF PERSONS UNDER HIS CHARGE.

10.—(1) The deputy in charge of any district shall—

- (a) keep a record of the names of the workmen under his charge in that district during his shift ; and
- (b) take all reasonable steps to ensure that every such workman understands and carries out—

(i) his duties under the Act, the regulations of the mine and any order made under the Act ; and

(ii) every direction given to him with a view to safety.

(2) A direction given to any person by the deputy in charge of a district requiring that person forthwith to leave that district and to return to the surface, on the ground that that person has infringed, or has attempted to infringe, any provision of the Act, or of the regulations of the mine, or of any order made under the Act, shall for the purposes of section seventy-four of the Act be deemed to be a direction with respect to working given to that person with a view to safety.

DUTIES ON CONCLUSION OF SHIFT.

11.—(1) At the end of a shift in any district, the deputy in charge, or a person appointed by him under regulation fourteen, shall, unless there is any person then in that district for the succeeding shift, ensure that—

(a) the ventilation is taking its proper course ; and

(b) except for what is necessary for the safety of the mine, all lights are extinguished and all power cut off :

Provided that, if workmen are to arrive in the district for the succeeding shift before the expiry of thirty minutes from the departure of the last workman in that shift, fixed electric lights need not be extinguished.

(2) The deputy in charge of a district shall not leave the mine at the end of any shift if there are to be workmen at work in that district during the succeeding shift, until he has conferred with the deputy succeeding him, and has given to that deputy all information which he then has which is necessary for the safety of persons employed in the district :

Provided that this paragraph shall not apply if no workman is to arrive in the district for the succeeding shift before the expiry of one hour from the departure of the last workman in the shift in question.

DEPUTY'S REPORT ON SHIFT.

12.—(1) The deputy in charge of a district shall, as soon as practicable after the end of his shift, record in a book to be kept at the mine for the purpose a report (to be known for the purposes of the Act, in relation to that shift, as the " general report ") on the performance of all his duties during the shift, and on anything known to him which has occurred which is material to the proper working of the mine or the safety and health of persons employed in his district.

(2) Every report made in pursuance of this regulation shall, except in so far as it consists of printed matter, be in the handwriting of the deputy concerned, and shall be signed by him.

MISCELLANEOUS DUTIES.

13.—If any way or part of a way affording means of egress from a deputy's district to the surface for the purposes of section thirty-six of the Act is not ordinarily used for travelling, each deputy regularly assigned to be in charge of that district shall forthwith make himself acquainted with that way or that part, and shall thereafter travel the whole of it once at least in every month.

14.—(1) If the deputy in charge of a district leaves the district while workmen are still at work therein, he shall appoint a competent person to exercise control in it on his behalf, so however that no such appointment shall relieve the deputy of his duties with regard to inspections and reports.

(2) While any person so appointed is in charge of the district, he shall (within the limits specified in paragraph (1)) perform all duties, and may exercise all powers, attaching to the deputy concerned under the Act or the regulations of the mine.

PART II.

QUALIFICATIONS OF DEPUTIES.

15.—(1) (*Amends S. 15 of the Coal Mines Act, 1911—see page 8.*)

(2) (*Amends S. 9 of the Coal Mines Act, 1911—see page 3.*)

PART III.

INSPECTION OTHERWISE THAN UNDER SECS. 64 AND 65 OF THE ACT.

Roads and Airways.

16.—(*Amends S. 66 of the Coal Mines Act, 1911—see page 22.*)

Safety Lamps.

17.—(1) No workman shall travel to his work in any mine in which safety lamps are required to be used, unless, before or as soon as practicable after he entered the mine, his safety lamp was examined by a deputy or other competent person appointed by the manager for the purpose and found to be in safe working order and properly locked.

(2) If and for so long as, in any part of any mine, safety lamps are introduced as a temporary precaution, the manager shall appoint a place for the examination of safety lamps in pursuance of this regulation ; and no workman shall proceed beyond the place so appointed, unless his safety lamp was examined at that place by a person appointed as if in pursuance of paragraph (1) and found to be in safe working order and properly locked.

PART IV.

UNDERGROUND OFFICIALS SUPERIOR TO DEPUTIES.

Qualifications.

18.—(1) No person shall be qualified to be appointed or to be an underground official superior to the deputies but inferior to the manager or under-manager in any mine, unless he is—

(a) the holder of a first- or second-class certificate of competency under the Act ;

(b) not less than twenty-four years of age and the holder of a deputy's certificate, granted on a report by the Mining Qualifications Board that he has the qualifications required under paragraph (a) of subsection (4) of section fifteen of the Act, being a person who has had not less than one year's experience as a deputy ;

(c) not less than twenty-seven years of age and the holder of a deputy's certificate, granted on a report by the Board aforesaid that he has the qualifications required under paragraph (b) of subsection (4) aforesaid, or of a certificate made in pursuance of subsection (2) of the said section fifteen, being a person who has had not less than two years' experience as a deputy ; or

(d) a person who has during the period beginning on the first day of June, and ending on the thirty-first day of August, nineteen hundred and fifty-two, been certified by the manager of a mine to be a person who at some time before the said first day of June had been appointed in writing to perform, and had in fact performed, the duties of such an official in that mine, and who immediately before that day was fully qualified to perform them.

(2) A certificate for the purposes of sub-paragraph (d) of paragraph (1) shall be made on a form provided for the purpose by the Minister, and shall within fourteen days of being made be authenticated by the owner of the mine, or by a representative of the owner superior to the manager.

Appointment.

19.—All officials appointed under this part of these regulations to perform duties in relation to the working of the mine shall be appointed by the manager in writing.

Duties.

20.—(1) Each official appointed as mentioned in regulation nineteen shall be responsible for the observance of all safety requirements relating to his duties, and for the safe performance of any operation which he has been appointed to supervise.

(2) Each such official shall—

(a) during his shift, confer with the deputy in charge of each

district to which his duties relate, and with each other official then performing duties in or responsible for any such district or any other part of the mine to which his own duties relate;

(b) at the end of his shift, give to any person succeeding him in the performance of his duties all information which he then has which is necessary for safety; and

(c) within twenty-four hours of the end of his shift, examine and countersign any general report which includes matters relating to the performance of his own duties, in so far as it relates to those matters.

PART V.

EXCEPTIONS.

21.—These regulations shall not, in so far as concerns regulations four, eight, nine, eleven, thirteen and fourteen, apply to shafts in the course of being sunk.

INTERPRETATION.

22.—(1) In these regulations the following expressions have the meanings hereby assigned to them respectively:—

“the Act” means the Coal Mines Act, 1911;

“the Minister” means the Minister of Fuel and Power;

“general report”, in relation to any shift, has the meaning assigned by paragraph (1) of regulation twelve.

PNEUMOCONIOSIS.

Coal Mines (South Wales) (Pneumoconiosis) Order, 1943, No. 1696.

[*Made under Regulation 60a of the Defence (General) Regulations, 1939.*]

1—Every person carrying on a coal-mining undertaking in South Wales shall, if so directed on behalf of the Minister by the Chief Inspector of Mines or by the Inspector of the Division in which the mine, or that part thereof, to which the Direction applies is situate, take such one or more of the following measures for the reduction of the amount of airborne dust below ground as may be specified in the Direction, that is to say:—

(i) the injection of water into the working face so as to damp the slips and cleavages of the seam;

(ii) the use, in association with mechanical coal-cutters in operation, below ground, of sprays or jets of water so as to damp the cuttings as these are formed;

(iii) the use, in association with conveyors and loaders in operation below ground, of sprays or jets of water so as to damp the dust ;

(iv) the use of exhaust appliances at the delivery ends of conveyors and loaders in operation below ground.

2.—Any Direction under the preceding Article of this Order may be given so as to apply to any mine, or any part thereof, or to any mechanical coal-cutter, conveyor or loader when in operation and may specify the date or dates by which such measures as are specified therein are to be taken.

3.—Every undertaker shall provide and shall maintain in good and proper working order and condition all necessary equipment required for the due carrying out of the measures specified in a Direction given to him under Article 1 of this Order.

4.—The manager and every agent of any mine in which any equipment for the reduction of airborne dust is installed (whether or not in pursuance of the provisions of this Order) and every person responsible for the use, care and maintenance of such equipment, shall take all such steps as are reasonably practicable to ensure that full and proper use is made thereof and that it is maintained in good and proper working order and condition.

5.—No person, except with permission granted by the manager of the mine in which any such equipment as is mentioned in the last preceding Article of this Order is installed or by a person authorised in that behalf by such manager, shall remove, alter, interfere or tamper with, or damage any such equipment or shall obstruct its operation.

6.—The Chief Inspector of Mines or the Inspector of the Division as aforesaid may vary or revoke any Direction given under Article 1 of this Order and may, to such extent, during such periods, on such terms and subject to such conditions (if any) as he may specify, exempt any undertaker from compliance with any such Direction.

7.—In this Order and (unless the contrary intention appears) in every Direction given and exemption granted under the provisions of this Order, unless the context otherwise requires, the following expressions have the meanings hereby respectively assigned to them, that is to say :—

“ Undertaker ” means a person carrying on a coal-mining undertaking in South Wales to whom a Direction has been given under the provisions of Article 1 of this Order.

“ South Wales ” means the counties of Brecon, Carmarthen, Glamorgan, Monmouth and Pembroke, or any one or more of them.

RESCUE (SECTION 85).

Coal Mines General Regulations (Rescue), 1928, No. 971.

(As amended by the Coal Mines (Rescue) Amending Regulations of 1935, No. 652.)

PART I.

GENERAL OBJECT OF THE REGULATIONS.

1.—It shall be the duty of the owners, jointly and severally, of the mines to which these Regulations apply, to make adequate provision in the manner laid down in the Regulations for the safe conduct of rescue and other necessary work in mines after an explosion or a fire, or otherwise in an atmosphere which may be dangerous to life.

PART II.

SCOPE OF THE REGULATIONS.

2.—The mines to which these Regulations apply are all mines in which coal or oil shale is worked and in which the total number of persons employed underground exceeds ten; provided that the Minister may exempt from any of the provisions of the Regulations, either absolutely or subject to conditions—

- (i) any mine in which the total number of persons employed underground is less than 100; and
- (ii) any other mine which is outside a radius of 15 miles from a Central Rescue Station,

if in each case the Minister is satisfied that it is not reasonably practicable for the owner to comply with such provisions.

PART III.

GENERAL ORGANISATION.

3.—There shall be provided and maintained at convenient centres sufficient stations (hereinafter called "Central Rescue Stations") fully equipped for rescue work and for the training of rescue workers as hereinafter prescribed. For the purpose of determining the number of Central Rescue Stations required the radius of action of a station shall be deemed to be 15 miles or such greater distance, not exceeding 20 miles, as the Minister may by Order allow in particular cases on the ground of special circumstances, and subject to such special conditions as the Order may prescribe to ensure that the service over the wider radius will be speedy and effective.

4.—Every Central Rescue Station shall be placed under the immediate control of a competent superintendent who has been fully trained in rescue work and (unless so employed prior to the commencement of these Regulations) has had five years' practical experience underground in a mine.

5.—The owner of every mine to which these Regulations apply shall affiliate the mine to a Central Rescue Station in such manner as to acquire the right of calling for and obtaining the full services of the station at any time. Every mine shall be in telephonic communication with the station to which it is affiliated.

Provided that if the Inspector of the Division is satisfied in respect of any mine that effective arrangements for rescue work in accordance with these Regulations have been made at the mine independently of a Central Rescue Station he may exempt the mine from this Regulation, subject to such conditions as he may prescribe.

6.—Sufficient rescue workers shall be maintained and organised in accordance with the requirements contained in the First Schedule to these Regulations, namely, either (a) by the provision of a permanent rescue corps at the Central Rescue Station and of trained rescue workers at the mine, or, if there is no permanent rescue corps at the Central Rescue Station, (b) by the provision of rescue brigades at the mines.

No breach of this Regulation shall be deemed to have arisen in consequence of failure to maintain at the mine the full number of rescue workers required by the Regulation, if the owner of the mine proves that he had made every effort to comply with the Regulation, and that the failure was due to causes over which he had no control.

7.—(a) The members of a permanent rescue corps shall be continuously employed at the station, and in constant residence there, provided that with the approval of the Minister, and subject to such conditions as he may prescribe, members of a permanent rescue corps may be employed in mines in the immediate neighbourhood of the station so long as not more than three of them are engaged underground in the same shift, and may also reside away from the station so long as they reside within half a mile of the station and are in communication with it by telephone or electric signal or by other means approved by the Inspector of the Division.

(b) As regards other rescue workers, effective arrangements shall be made at every mine for summoning them immediately their services are required.

PART IV.

SELECTION OF RESCUE WORKERS: INSTRUCTION AND PRACTICE.

8.—(a) The persons to be trained in rescue work shall be carefully selected on the grounds of their coolness, powers of endurance and general suitability for the work, and, in the case of men from mines to be trained to co-operate with permanent rescue corps, also on the ground of their knowledge of the mine. In particular, no person shall be trained in rescue work unless he fulfils the conditions and possesses the qualifications specified in the Second Schedule to these Regulations.

(b) Every rescue worker so long as he continues to practise shall be re-examined every 12 months by a duly qualified medical prac-

tioner in accordance with the rules contained in Part II of the Second Schedule to these Regulations; and no person shall continue to practise unless he is certified to be fit.

9.—There shall be employed at every Central Rescue Station a sufficient number of competent instructors to train rescue workers. One or more of these instructors shall always be in attendance at the station and one of them shall be appointed to take charge of the station in the absence of the superintendent. The number of instructors employed shall not be less than the number specified in Part I of the Third Schedule to these Regulations.

10.—(a) Every person selected for training in rescue work shall undergo the course of instruction and practices set out in Part II of the Third Schedule to these Regulations, or such other course of instruction and practices as the Minister may from time to time approve, until he has been certified by the superintendent to be efficient.

(b) Rescue workers who have been certified to be efficient shall undergo practices and receive instruction as set out in Part III of the Third Schedule to these Regulations, or such other practices and instruction as the Minister may from time to time approve.

(c) A record shall be kept at every Central Rescue Station of all persons undergoing practices or receiving instruction in rescue work at the station. This record shall contain such particulars as the Minister may prescribe, including the date and character of each practice and the condition of each man after the practice, and if anything abnormal is observed in his condition, whether it is due to a defect of the apparatus or to the man himself.

PART V.

RESCUE APPARATUS AND EQUIPMENT.

11.—(a) At every Central Rescue Station and at every mine employing 100 or more persons underground there shall be provided and maintained, in good order and ready for immediate use, apparatus and equipment suitable and sufficient to enable the requirements of these Regulations to be carried out. Such apparatus and equipment shall include that specified in the Fourth Schedule to these Regulations and such other necessary apparatus and equipment as the Minister may from time to time prescribe.

(b) The following apparatus and equipment to be provided in pursuance of these Regulations shall be of a type or standard approved by the Minister and no such apparatus or equipment being apparatus or equipment of a type or standard not approved by the Minister shall be provided or used at any Central Rescue Station or at any mine:—

(a) breathing apparatus;*

(b) smoke helmets and other apparatus serving the same purpose;*

* For lists of breathing apparatus and of smoke helmets, etc., approved for use in mines and at Central Rescue Stations, see page 209.

- (c) electric safety lamps and flame safety lamps ;
- (d) first-aid boxes ;*

Any apparatus or equipment approved by the Minister in pursuance of this Regulation may be approved either absolutely or subject to conditions.

(c) Subject to any exemption granted under No. 5 of these Regulations, breathing apparatus for use at a mine in rescue work or training shall be obtained as required from a Central Rescue Station. It shall not be kept at a mine except with the consent, in writing, of the Inspector of the Division, who shall not give his consent unless he is satisfied that the apparatus will be constantly maintained in good condition ready for immediate use, and shall withdraw his consent if the apparatus is not so maintained.

(d) Every breathing apparatus and every flow-meter shall be adjusted and tested periodically, and the purity of oxygen for use in breathing apparatus shall be tested ; in each case in the manner prescribed in the Fifth Schedule to these Regulations, or in such other manner as the Minister may from time to time prescribe.

12.—Where, in or about any mine or at any Central Rescue Station, there is any accident or dangerous occurrence from the use of breathing apparatus or smoke helmets or other apparatus serving the same purpose, notice in writing giving particulars of the accident or dangerous occurrence shall forthwith be sent to the Inspector of the Division :—

- (a) if the accident is at a mine, by the manager of the mine ;
- (b) if the accident is at a Central Rescue Station, by the superintendent of the station.

PART VI.

ACCOMMODATION AT MINES.

13.—There shall be provided and maintained at every mine to which these Regulations apply a suitable room with sufficient accommodation for rescue workers who may engage in rescue work or rescue training and practice at the mine, and for housing such apparatus and equipment as is kept at the mine in pursuance of these Regulations.

At mines where the total number of persons employed under ground is 100 or more, the accommodation so provided (unless it is permanently separated from accommodation used for other purposes) shall be so arranged that it can readily be separated whenever required.

The accommodation shall be situated conveniently near the entrance of the mine and shall be provided with ample means of lighting and heating ; it shall be placed under the charge of a responsible person and kept clean and ready for immediate use.

* Revoked by General Regulations (First Aid), 1930, in regard to first-aid boxes at *mines*.

PART VII.

GENERAL.

14.—The owner, agent or manager of every mine affiliated to a Central Rescue Station shall arrange for the superintendent or other responsible officer of the station, accompanied by a responsible official of the mine, to inspect, at least once in every six months, the accommodation, apparatus, and equipment provided at the mine for rescue work, training and practice; and if on such inspection the superintendent should consider that there is anything defective or lacking, he shall report to the manager of the mine.

15.—There shall be kept at every mine to which these Regulations apply, in a form suitable for use by rescue workers, a sufficient number of clear and legible tracings of the workings of the mine up to a date not more than three months previously, showing the ventilation and all principal doors, stoppings and air crossings, regulators and telephone stations, and distinguishing the intake airways by a different colour from the return airways. The signs used in these tracings shall be those specified in the Sixth Schedule to these Regulations.

16.—The code of signals used in rescue work and training shall be the uniform code set out in the Seventh Schedule to these Regulations.

17.—Rules for the conduct and guidance of persons engaged in rescue work shall be adopted at every mine and shall embody the uniform code contained in the Eighth Schedule to these Regulations.

First Schedule (Regulation 6).

SCHEME "A".

Mines Served by Permanent Rescue Corps.

(1) A permanent rescue corps shall be organised and maintained at the Central Rescue Station. Exclusive of the superintendent and of the person appointed to take charge of the station in his absence, the corps shall consist of not less than six fully-trained men.

One or more members shall be trained to act as leaders.

(2) Men from Mines to Act with Permanent Rescue Corps.

The manager of every mine employing 100 or more persons underground and affiliated to the Central Rescue Station shall appoint on the following scale fully-trained men to co-operate with the Central Rescue Station in rescue work and practice.

Where the total number of persons employed underground is not more than 500 not less than one trained man.

Where the total number of persons employed underground is more than 500 but not more than 1,000 not less than two trained men.

Where the total number of persons employed underground is more than 1,000 but not more than 1,500 not less than three trained men.

Where the total number of persons employed underground is more than 1,500 not less than four trained men.

So far as practicable it shall be arranged that the trained men maintained at a mine shall not all be employed underground at the same time.

SCHEME " B ".

Mines Served by Rescue Brigades.

(1) Rescue brigades, each consisting of not less than five fully-trained men employed at the mine (one of whom shall act as captain) shall be organised and maintained at each mine on the following scale :—

Where the number of persons employed underground

is not more than 500 not less than 1 brigade.

Where the number of persons employed underground

is more than 500 but not more than 2,000 not less than 2 brigades.

Where the number of persons employed underground

is more than 2,000 not less than 3 brigades.

The owner of a mine in which the total number of persons employed underground is less than 100, shall be deemed to have complied with the foregoing provision if he has acquired the right of calling for a brigade from a neighbouring mine through a Central Rescue Station.

(2) A group of mines of which all the shafts or exits for the time being in use in working the mines lie within a circle having a radius of two miles, may, for the purpose of ascertaining the number of brigades required, be treated as one mine.

(3) So far as practicable it shall be arranged that the members of a brigade shall not all be employed underground at the same time.

Second Schedule (Regulation 8).

Part I.—Selection and Qualifications of Rescue Workers.

(1) No person shall be trained as a rescue worker unless :—

- (i) he is certified by a duly qualified medical practitioner after thorough examination in accordance with the rules set out in Part II of this Schedule to be free from any organic disease or weakness, and to be fit for undertaking rescue work in a mine ; and
- (ii) he is considered by the superintendent of the rescue station and the captain of the brigade to be suitable for rescue work with breathing apparatus ;
and in the case of men hereafter selected
- (iii) he has had two years' working experience underground in a mine ; and
- (iv) he is the holder of a certificate of proficiency in first aid from one of the Societies or Bodies approved by the Minister*.

Part II.—Rules as to Medical Examination.

The examining doctor shall make a thorough examination of each person to be trained or kept in training and shall devote particular attention to the following requirements :—

The person must be free from

- (i) any tendency to fainting or vertigo ;
- (ii) any chronic obstruction in the air passages ;
- (iii) dyspnoea on light exertion ;
- (iv) nystagmus ; any marked degree of myopia or any other serious optical defect or disease ;
- (v) deafness ;

and must be of

- (vi) good physical development and mental alertness, and capable of undergoing hard physical exertion for not less than 15 minutes without being unduly distressed or fatigued.

* For list of Approved Societies and other bodies, see page 195.

Third Schedule (Regulations 9 and 10).

INSTRUCTION AND PRACTICE.

Part I.—Appointment of Instructors.

Competent instructors among whom may be included the superintendent of the station and the person appointed to take charge of the station in the absence of the superintendent, shall be employed on the following scale :—

- (i) At stations not maintaining a permanent rescue corps.—If the total number of brigades required to be provided at the mines served by the station does not exceed 50, two ; does not exceed 100, three ; exceeds 100, four.
- (ii) At stations maintaining a permanent rescue corps.—If the total number of persons employed underground at the mines served by the station does not exceed 15,000, two ; if the number exceeds 15,000, three.

Part II.—Prescribed Course of Instruction and Practices.

The prescribed course of instruction and practices is as follows :—

(a) *Instruction as to :*

- (i) the general methods of dealing with underground fires and the recovery of mines after fires and explosions ;
- (ii) the construction, use, repair, maintenance and testing of the type or types provided of breathing apparatus and of smoke helmets or other apparatus serving the same purpose ;
- (iii) the use of methods and apparatus for reviving men ;
- (iv) the properties and detection of the noxious and inflammable gases which may be found in mines ;
- (v) the taking of gas samples in irrespirable atmospheres ;
- (vi) the reading of mine plans ;
- (vii) the requirements contained in the Seventh and Eighth Schedules to these Regulations.

(b) *Practices*—not less than 12 for each man with breathing apparatus and in addition not less than two for each man with smoke helmets or other apparatus serving the same purpose, in each case under conditions so devised as to represent those likely to be encountered in underground operations requiring the use of such apparatus.

The practices shall be carried out as follows :—

- (i) *Rescue Brigades*.—As far as possible by each brigade as such, *i.e.* by all members of the brigade, at one and the same time.
- (ii) *Permanent Rescue Corps*.—By at least five members at one and the same time.
- (iii) *Men from Mines to act with Permanent Rescue Corps*.—Not more than eight men nor less than five men shall take part in any practice, but if five men do not attend on any occasion the number may be made up by members of the permanent rescue corps. So far as practicable the same five men shall practise together as one brigade.

(c) The practices with breathing apparatus shall take place in ordinary air and shall progress gradually until practices can be carried out in a hot and irrespirable atmosphere.

(d) The practices with breathing apparatus shall comprise the following operations :

- (i) The repeated raising and lowering of a weight of 56 lb. to and from a height of six feet by means of a rope and pulley.
- (ii) Walking continuously at a fair pace for half an hour.

- (iii) Building and removing temporary stoppings of stone, brick, sand-bags, brattice cloth, or other materials, and carrying the materials required for such operations over a distance of at least ten yards.
- (iv) Removing debris in confined spaces as representing the clearing of a fall of roof.
- (v) Setting timber or other roof supports.
- (vi) Carrying, pushing or pulling on a stretcher a live person or dummy body weighing 150 lb. along the length of the gallery, and through an opening two feet high by three feet wide and four yards long.
- (vii) The rapid establishment of communication.

Part III.—Practices and Instruction after Becoming Efficient.

(a) Practices.

Rescue Brigades and Men from Mines to act with Permanent Rescue Corps.—Practices with breathing apparatus at least one in each quarter and at least six in each year, of which at least two shall take place in mines, and the remainder in a hot and irrespirable atmosphere.

Permanent Rescue Corps.—In addition to regular practices at the Central Rescue Station, practices with breathing apparatus underground in a mine at least one in each quarter and at least six in each year. Members who are not employed regularly underground in mines shall have six further practices underground in mines in each year, making twelve practices in all.

Where possible mine practices shall include work in low and constricted roadways.

(b) Instruction.

Revision of all subjects included in the prescribed course of instruction and practices.

Part IV.—General.

All practices required by this Schedule shall last at least two hours except on occasion when, in the opinion of the instructor, it is desirable in the interests of safety to curtail the practice. At some of the practices the breathing apparatus shall be worn continuously for two hours.

Fourth Schedule (Regulation 11).

APPARATUS AND EQUIPMENT.

(a) Minimum to be kept at Central Rescue Stations.

- (i) Twenty complete suits of breathing apparatus, with means of supplying sufficient oxygen or liquid air to enable such apparatus to be constantly used for two days, and of charging such apparatus;
- (ii) Four smoke helmets or other apparatus serving the same purpose with not less than 120 feet of tubing for each;
- (iii) Twenty electric safety lamps; and six flame safety lamps;
- (iv) Four reviving apparatus (not of the forced-breathing type) each with a cylinder or cylinders capable of supplying at least 20 cubic feet of a mixture of carbon dioxide and oxygen which shall contain not less than 5 per cent. and not more than 7 per cent. of carbon dioxide.
- (v) A first-aid box or boxes;
- (vi) Fresh drinking water;
- (vii) Cages of small birds for testing for carbon monoxide;
- (viii) A motor car of adequate capacity and power in constant readiness;
- (ix) Two portable signalling devices;
- (x) A Clowes or Oldham gas testing chamber, or some similar apparatus giving facilities to test for inflammable gas.

(b) *Minimum to be kept at every mine employing 100 or more persons underground.*

- (i) One smoke helmet or other apparatus serving the same purpose with not less than 120 feet of tubing;
- (ii) Two or more small birds for testing for carbon monoxide;
- (iii) One electric safety lamp and one flame safety lamp for each trained rescue man and each capable of giving light for at least four hours;
- (iv) One reviving apparatus (not of the forced-breathing type) with a cylinder or cylinders capable of supplying at least 20 cubic feet of a mixture of carbon dioxide and oxygen which shall contain not less than 5 per cent. and not more than 7 per cent. of carbon dioxide;
- (v) (Revoked.)
- (vi) Fresh drinking water.

Fifth Schedule (Regulation 11).

BREATHING APPARATUS : ADJUSTMENT AND TESTS.

(1) In every breathing apparatus which is arranged so as to give a uniform oxygen delivery, the reducing valve shall be so adjusted as to supply not less than two litres of oxygen per minute.

(2) Every breathing apparatus shall be thoroughly tested at least once a month in the following manner, and the results of the test giving such particulars as the Minister may prescribe shall be recorded forthwith in a book to be kept at the Central Rescue Station or the mine as the case may be :—

- (i) The apparatus shall be carefully examined in respect of its general condition and particular attention shall be given to any delicate and perishable parts.
- (ii) The apparatus shall be tested for leakage by completely immersing it in water. For the purpose of this test the apparatus shall be fully distended, and if it is a compressed oxygen apparatus the oxygen shall be turned on. The apparatus, immersed in water, shall be well shaken and shall be closely examined in every part for leakage by the superintendent or one of the instructors of the Central Rescue Station, or by the captain of the rescue brigade. If any leakage is observed the apparatus shall be deemed unsafe for use.
This test may be omitted in respect of the pack of a liquid air apparatus in so far as it would be damaged by immersion.
- (iii) The pressure at which any automatic relief valve discharges shall be measured.

The following additional tests shall be applied to compressed oxygen apparatus:—

- (iv) The pressure in the oxygen cylinder shall be measured.
- (v) The rate of delivery of oxygen shall be measured by a flow-meter and if that rate is capable of being adjusted by the wearer of the apparatus, it shall be measured over the whole range of adjustment.

(3) Except for practices in fresh air, no breathing apparatus shall be used underground unless immediately before use it has been tested and found safe in the manner prescribed by paragraph (ii) of Clause (2) of this Schedule, provided that as a matter of urgency to save life, but not otherwise, this test may be omitted and a test for leakage by mouth suction applied instead.

(4) The oxygen in every cylinder supplied for use in connexion with breathing apparatus shall be analysed before being used in a breathing apparatus, and no oxygen which is found to contain more than two per cent. of impurities shall be used. The results of every analysis giving such particulars as the Minister may prescribe shall be recorded forthwith in a book to be kept at the station or mine, as the case may be.

(5) Flow-meters shall be tested for accuracy at least once in every six months, and the results of every test giving such particulars as the Minister may prescribe shall be recorded forthwith in a book to be kept at the station or mine, as the case may be.

Sixth Schedule (Regulation 15).

CODE OF SIGNS.

Brick, stone or concrete stoppings, explosion proof
(No. 91 of the *General Regulations* of 10 July,
1913)



Brick, stone or concrete stoppings other than the
above



Fire dams or seals



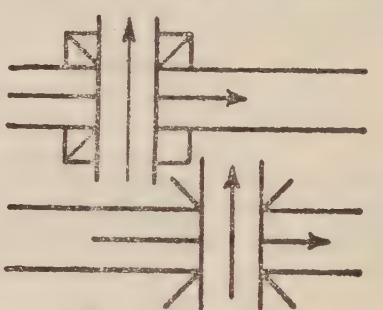
Doors



Regulators



Air crossings, explosion proof (*Section 42(3), Coal
Mines Act, 1911*)



Air crossings other than the above ...



Telephones



Underground ambulance station (*in red*) ...



Direction of air current
Intake airways—Blue. Return airways—Red ...



Seventh Schedule (Regulation 16).
CODE OF SIGNALS.

Electric Signalling.	Signal.	Signalling between Members of a Brigade.	Signal.
"Distress" or "Help Wanted." (If NO ANSWER is given to a call, "Distress" is to be understood.)	ONE ring.	"Distress" or "Help Wanted."	ONE hoot.
"Not understood" or "Repeat the Message."	TWO rings.	Halt	TWO hoots.
"No"	THREE rings.	Retire	THREE hoots.
"Yes" or "All right" or "All's well." To "ring up." To "ring off."	FOUR rings. FIVE rings.	Advance To call attention ...	FOUR hoots FIVE hoots.

Eighth Schedule (Regulation 17).

Uniform Code of Rules for the Conduct and Guidance of Persons Employed in Rescue Work.

MANAGER OR PRINCIPAL OFFICIAL FOR THE TIME BEING AT THE SURFACE OF THE MINE.

1. On receiving information of any emergency likely to require the services of a rescue corps or brigade, the following steps shall immediately be taken by the manager, or, in his absence, by the principal official present at the surface :

(a) Telephone to the Central Rescue Station. Inform the responsible officer on duty at the station of the character of the occurrence. State whether assistance will be needed from rescue brigades other than the permanent rescue corps or the brigades attached to the mine ;

(b) Summon the trained men attached to the mine and requisition the smoke helmets or other apparatus serving the same purpose maintained at the mine ;

(c) Telephone for medical assistance ;

(d) Telephone to H.M. Divisional Inspector of Mines and the local offices of the Miners' Union and the Firemen's, Examiners' or Deputies' Association ;

(e) If necessary, communicate with the police station.

2. No person shall be allowed to enter the mine or the part of the mine which is unsafe for the purpose of engaging in rescue operations unless authorised by the manager, or, in his absence, by the principal official of the mine present at the surface ; and, during the progress of such operations, a person or persons shall be stationed at the entrance of the mine, and required to keep a written record of all persons entering and leaving the mine. Only men in training with the apparatus shall be permitted to enter the mine for the purpose of using breathing apparatus.

3. Prior to sending a brigade underground, clear instructions shall be given by the principal official of the mine for the time being on the surface, or by a responsible person deputed by the agent or manager, to the leader of the brigade as to where it shall go and what it shall attempt. Unless the leader is personally thoroughly familiar with the roadways in question, the route shall be marked on a tracing, which the leader shall take with him into the mine.

4. A duly qualified medical practitioner shall remain in attendance at the mine so long as rescue parties are at work, unless, in the opinion of the manager and of the Inspector of Mines and miners' representative (if present), that course is unnecessary.

He shall examine every man engaged in rescue work before permitting him to go underground for a second spell of that work.

5. As soon as possible a base or bases shall be established in fresh air, but as near to the irrespirable zone or zones as safety permits. Each such base shall, if possible, be connected by telephone to the surface or to the shaft bottom. Whenever men are at work beyond the base there shall be stationed at the base as soon as possible the following : (a) Two men, of whom at least one should understand rescue appliances and first aid ; (b) A spare brigade with rescue apparatus and ready for immediate service ; (c) One or more reviving apparatus, stretchers and birds.

CAPTAIN OR LEADER OF A RESCUE BRIGADE.

6. The leader shall not permit the brigade to go underground until he has received clear instructions from the manager or from the person acting on the manager's behalf ; and, unless the leader knows the route thoroughly, he shall take underground a plan on which the route is clearly marked.

7. The leader shall not engage in manual work. He shall give his attention solely to directing the brigade and to maintaining its safety. He shall examine the roof and supports during the journey inbye and, if there is any likelihood of a fall, he shall not proceed until the brigade has made the place secure. He shall not take the brigade through any passage less than two feet high and three feet wide, except in a case of urgent necessity.

8. When the atmosphere is clear, the leader shall, when passing the junction of two or more roads, clearly indicate the route by means of arrow-marks in chalk. When the atmosphere is thick with smoke the leader shall see that a life-line is led in from fresh air, and shall not allow any member of the brigade to move out of reach of that line ; or, if that course is impracticable, he shall not proceed until every road branching from the route is fenced across the opening.

9. Before proceeding underground the leader shall test, or witness the testing of, or satisfy himself that tests have been made of, every rescue apparatus of the brigade. He shall check the equipment of his party, and, immediately before entering irrespirable air, make sure that every apparatus is working properly.

10. When using rescue apparatus the leader (who shall carry a watch) shall read the pressure of the compressed oxygen every 20 minutes, or thereabouts, and shall commence the return journey in ample time. In travelling he shall adapt the rate to that of the slowest member.

MEMBERS OF RESCUE BRIGADES.

11. Members of brigades shall, in general, use the prescribed signals in communicating to one another.

12. In travelling with rescue apparatus, each member of the brigade shall keep the place given him when numbering off. If the pace is too quick, or if distress is felt for any reason, the member shall at once call attention to the fact.

13. No person shall commence a second or subsequent spell of work in noxious air without being examined and passed by a duly qualified medical practitioner, if present, or by the rescue station superintendent or other competent person, if a duly qualified medical practitioner be not present.

SEARCH FOR PROHIBITED ARTICLES (SECTION 35(2)).

Order of 1912, No. 510.

[*Made in pursuance of S. 35(2) of the Coal Mines Act, 1911.*]

PRESCRIBED MANNER OF SEARCH OF PERSONS EMPLOYED BELOW GROUND FOR PROHIBITED ARTICLES BEFORE COMMENCEMENT OF WORK.

1.—The search shall be made by a person, or persons, appointed for the purpose in writing by the manager.

2.—In the case of members of a shift the search shall be made in the presence of two or more members of the shift.

3.—The search shall be made with due regard to propriety and so as to occasion the person searched as little inconvenience as possible.

4.—The person conducting the search shall—

(a) search or turn out all pockets;

(b) pass his hands over all clothing;

(c) examine any article in the workman's possession.

5.—If the person conducting the search suspects that the person searched is concealing any prohibited article, he shall detain him and as soon as possible refer the matter to the manager, under-manager, or other official authorised by the manager for the purpose, who shall not allow the person to proceed to work until he has satisfied him that he has no prohibited article in his possession.

SUPPORT OF ROOF AND SIDES.

Coal Mines (Support of Roof and Sides) General Regulations, 1947, No. 973.*

1.—(Amends S. 50(1), (2), (3), (4), (5) and (7) and S. 75 of the Coal Mines Act, 1911—see pages 16 and 23.)

2.—(1) Every prop used as a roof or side support shall be set securely and on a proper foundation, and whenever it becomes broken or unstable shall, as soon as practicable, be replaced or made stable.

(2) Every prop set in a face working or in a roadhead, unless set under a wooden bar or for the express purpose of inducing a roof break, shall have, between its top and the roof or bar above it, a suitable wooden lid of adequate thickness and of sufficient size to cover at least the whole of the end of the prop :

Provided that the Inspector of the Division :—

(a) may exempt any mine, or part of a mine, from the application of the provisions of this paragraph if he is satisfied that the use of such lids is unnecessary;

(b) may require lids to be set under wooden bars if and in so far as he is of opinion that it is necessary in the interests of safety.

3.—Every chock which forms part of a system of support shall be well built on the natural floor, and shall be made tight to the roof;

* For definitions of certain terms used, see page 16.

no round pieces of material shall be used as members, except in chocks which are to be left in the packs or waste.

4.—The walls of every pack which forms part of a system of support shall be well built on the natural floor ; and the pack shall be filled with debris and made as tight to the roof as practicable over its whole area.

5.—(1) Bars shall be used to support the roof in all face workings where machinery is used for cutting, conveying or loading. Such bars shall be set systematically at such regular intervals and in such manner as is specified by the manager in the Support Rules ; and shall be supported as effectively as possible by at least two supports.

Such bars and supports shall be set throughout the length and over the whole width of the face working except in so far as it is impracticable to set bars in the path of travel of an overcutting machine or is necessary to remove supports from the path of travel of machinery used for cutting or loading.

(2) The Chief Inspector of Mines or the Inspector of the Division may exempt any mine, or part of a mine, from the application of the provisions of the preceding paragraph if he is satisfied that either the natural conditions of the workings or the method of work in use makes compliance therewith inexpedient or ineffective.

6.—(1) The roof and wherever necessary the sides of every roadhead shall be systematically and adequately supported by setting supports, in addition to the packs (if any), at such regular intervals and in such manner as is specified by the manager in the Support Rules.

(2) The roof of the roadhead or, in a case in which there is any roof ripping, that part of the roadhead between the face and the roof ripping farthest from the face, shall be supported over the whole width by rows either of bars or of bars and crossbars. Either the bars, or the crossbars, in each row shall be set not more than four feet apart ; so however that bars, and crossbars if used, may be set in such manner and at such distances apart as the Inspector of the Division authorises in writing.

Where there are any roof rippings within the roadhead, a bar or bars shall be set as near as practicable to each ripping lip extending across the whole width of the ripping.

(3) Each bar in relation to its length and the span between its supports shall be of adequate strength and shall be kept supported by supports of proportionate strength and in such a manner as to ensure its stability.

(4) The face or faces of every roof ripping within a roadhead shall be supported by sprags or other effective supports.

(5) At any roof ripping, suitable temporary supports specially provided for the purpose shall be set as soon as reasonably practicable to secure the newly exposed roof.

7.—Wherever roof supports are removed in order to advance or turn a machine, or to make room for it, long bars shall be used for the pur-

pose of supporting the roof at that place, and there shall never be less than two props to each of such bars :

Provided that if an overcutting machine is used, having a jib that cannot be lowered to permit of long bars being used, and in any other circumstances in which the manager satisfies the Inspector of the Division that it is impracticable to use long bars, other temporary supports shall be set which will serve the same purpose so far as practicable.

Any dispute between the manager and the Inspector of the Division as to whether or not it is practicable to use long bars shall be settled in manner provided by the Act for settling disputes.

8.—When a fall of roof or side involving the displacement or breakage of supports has occurred in any place where any person has to work or pass, any newly-exposed roof or sides shall at once :—

- (a) be dressed, if necessary ; and
- (b) be secured by supports ;

before the work of clearing any debris, other than such work as is necessary to set supports, is begun.

9.—(1) If coal or any other mineral or stone is to be got from the waste, the roof under which any person is to work for that purpose shall be adequately supported ; and if it is to be got by roof ripping in an advancing place other than a road or a roadhead :—

- (a) a bar or bars shall be set as near as practicable to each ripping lip, extending across the whole width of the ripping, and shall be supported as effectively as possible by at least two supports ;

- (b) the face of the ripping shall be supported by sprags or other effective supports ;

- (c) suitable temporary supports provided for the purpose shall be set as soon as reasonably practicable to secure the roof newly exposed by the rippings.

(2) Supports shall not be withdrawn from under the roof adjoining the waste otherwise than by means of a device or method enabling such withdrawal to be carried out from a safe position.

(3) Where it is part of the system of work to withdraw supports from the waste or from under the roof adjoining the waste such supports shall be withdrawn in accordance with the system specified in the Support Rules ; and supports shall be set and maintained at the intervals specified in such Rules with a view to preventing the roof breaking down over the face working or in any place other than in the waste.

10.—The provisions of these Regulations shall not apply :—

- (a) to any mine of stratified ironstone in the Cleveland district ;
- (b) to any mine of thick coal in the South Staffordshire district ;
- (c) to any mine in any other district if the Minister is satisfied that the conditions of the workings in such mine are similar to those conditions in mines in the Cleveland or South Staffordshire district and directs that such provisions shall not apply.

11.—The Chief Inspector of Mines may, except in any case in which provision is made by these Regulations (other than by Regulation five) for exemption being granted by the Inspector of the Division, exempt any mine or part thereof or any specified class or description of mines from the application of the provisions of these Regulations, or any of them, if he is satisfied that compliance therewith is inappropriate or not reasonably practicable in the circumstances of the case.

12.—The provisions of section one hundred and nineteen of the Act shall apply to any direction given by the Minister, and to any exemption granted by the Chief Inspector of Mines, and to any authorisation and direction given and requirement made by the Inspector of the Division, under these Regulations as they apply to any exemption granted by the Inspector of a Division.

TELEPHONES AND SIGNALLING APPARATUS.

Coal Mines General Regulations, 1938, No. 797, Part III.*

8.—(a) If any part of a circuit containing electrical apparatus for signalling or communication (hereinafter called apparatus) is installed in a seam or any part of a seam in which safety lamps are required to be used, all the apparatus throughout the seam (other than apparatus used solely to control the raising and lowering of cages in shafts) shall be of a type or types approved by the Minister as regards safety in respect to inflammable gas.

(b) In respect of any type or types of apparatus, or generally the Minister may give his approval subject to such conditions as regards manufacture, installation and use as may be prescribed to ensure safety.

(c) No apparatus which is not of approved type shall be connected to a circuit in which apparatus of approved type is required to be used, except only that telephones of approved type used throughout one seam may be connected through the medium of a coupling unit, of a type approved for the purpose by the Minister, to telephones not of approved type on the surface or lawfully in use in any other seam which is separately worked.

Telephones and Signalling Apparatus Order, 1938, No. 1407.

[Made in pursuance of No. 8 of the Coal Mines General Regulations, 1938.]

1.—Subject to compliance with the following conditions as regards manufacture, installation and use, the following types of electrical apparatus (hereinafter called apparatus) shall be deemed to be apparatus of an approved type for the purpose of No. 8 of the Coal Mines General Regulations, 1938:—

* Part I of these Regulations relates to Fire-fighting (see page 86); the provisions of Part II have been revoked.

(a) Any type of apparatus for signalling or communication which is certified by the Minister.

(b) Any contact-maker which complies with the requirements of No. 134 of the Coal Mines General Regulations of 10 July, 1913.

(c) Any type of coupling unit which is certified by the Minister for the purpose of connecting telephones of an approved type with telephones not of an approved type.

2.—The apparatus shall be constructed so as to conform in all respects with the certificate and with the drawings and specifications appended thereto ; and shall be used only for the purpose or purposes for which it is certified. No alteration shall be made in the apparatus except such alteration (if any) as is permitted by a subsequent certificate.

3.—(a) No repair or adjustment of the apparatus shall be made such as to alter any of its electrical characteristics.

(b) No part of the apparatus which affects any of its electrical characteristics shall be replaced except by means of an identical part obtained from the manufacturer of the apparatus.

4.—The source of current to be used for operating apparatus shall be as follows :—

(a) for direct current signalling, a battery of 3-pint porous-pot Leclanche cells connected in simple series, or such other source of current as may be certified for the purpose by the Minister.

(b) For alternate current signalling, a transformer of a type certified for the purpose by the Minister.

(c) for magneto-call telephones, the generator included in the certified apparatus.

5.—The circuits comprising apparatus shall be arranged as follows :—

(a) No part of the circuit shall be connected to earth.

(b) Circuits supplied with current from different sources shall not be interconnected, except that it shall be permissible to use the same line wires for the calling and speaking circuits of telephones.

(c) Direct current bells or relays when connected in parallel shall be supplied from a single source of current.

(d) Direct current bells or relays when connected in series shall be supplied either from a single source of current, or from two identical sources of current connected in opposition.

(e) Magneto-call telephones shall be connected in parallel.

(f) Where magneto-call telephones of different types are connected in the same circuit, each instrument shall include a condenser of the type certified for the purpose and connected in shunt with the calling bell.

TRAINING.

Coal Mines (Training) General Regulations, 1945, No. 1217.*

* Regulation No. 17 provides :—(1) In these Regulations and (unless the contrary intention appears) in any instrument issued under the provisions of these Regulations, unless the context otherwise requires, the following expressions have the meanings hereby respectively assigned to them, that is to say :

“Instructor” means a person appointed in writing by the manager who is competent to give instruction and supervision in the performance of the work in which instruction and supervision is being given, who is required to devote his whole time to giving instruction and supervision and who does not himself assist in the performance of the work in which he is giving instruction and supervision otherwise than for the purpose of demonstration.

“Supervising workman” means a workman skilled in the performance of the work in which instruction and supervision is being given.

“Work at the coal face” includes any work performed within ten yards of a face (other than work performed by any person employed on the haulage or on a conveyor-loader in handling or filling tubs, or as a conveyor-engine attendant, in any part of the area comprised within the face and the sides of a road as if the sides were extended to the face) but does not include work performed at a training face.

“Training face” means a coal production face set aside for training purposes where :—

(a) not more than one person under training is supervised by any one instructor or supervising workman at any one time, unless, in relation to an instructor, an inspector of mines or the Chief Inspector otherwise at any time in writing permits ;

(b) no person under training is permitted to go on to the coal face, except within the area comprised within the face and the sides of a road as if the sides were extended to the face, unless accompanied by the instructor or supervising workman under whose instruction or supervision he is being trained ;

(c) no work is performed at any time when training is in progress except by a person under training, an instructor, a supervising workman, an official of the mine and any other person duly authorised for that purpose by the manager of the mine or by any official of the mine nominated for that purpose by the manager ;

(d) no wages of any person employed at the face when training is in progress depend directly on the amount of mineral gotten or the quantity of work done.

(Note.—For the time being a supervising workman at a longwall part-production training face may participate in a wages “pool”, if such a pool is customary at that face. The length of face set aside for the training “pair” or “pairs” must not exceed limits specified by the manager, and any adjustments because of absences at the face must not result in the combined task of any “pair” being increased. Trainees’ wages are not affected. This exemption expires on 31 December, 1951, but is subject to review.)

(2) In reckoning for the purposes of these Regulations and any exemption granted under the provisions of these Regulations a person’s experience of, or employment in, any work in or about a coal mine, his total experience of, or employment in, such work in or about all coal mines in which he has been employed shall be aggregated.

(3) References in these Regulations to any instrument issued under the provisions of these Regulations shall be construed as including references to any direction, approval and notification given certificate issued, appointment, requirement and report made, record kept and permit and exemption granted under any of the provisions of these Regulations, as the case may be.

1.*—No person shall be employed in or about a mine on any work on which he has not been employed before the coming into force of these Regulations, except under competent instruction and supervision, unless and until he has been adequately trained and is competent to do the work without supervision.

2.†—Without prejudice to the generality of the provisions of the preceding Regulation, no person who has not been employed on work below ground in a mine to which the provisions of either the Coal Mines Act, 1911, or the Metalliferous Mines Regulation Act, 1872, apply, shall be employed in a coal mine on work below ground until :—

(a) such person has been employed about a coal mine on work above ground for at least such period as is necessary to enable him to receive training as mentioned in the next following Regulation ;

(b) such person has received such training during the period immediately preceding, as near as may be, the day on which he is first employed on work in a coal mine below ground ; and

(c) there has been issued by a training officer appointed under these Regulations a certificate (in the prescribed form)‡ that such person has duly received such training.

* Students from recognized universities and training establishments outside the United Kingdom, having had not less than four months' practical experience below ground in mines abroad and having a working knowledge of the English language to the satisfaction of the manager, are exempt from the requirements of Regulations 1, 2 and 3. Such a student must, however, spend the first 20 days below ground under the close personal supervision of an instructor or supervising workman, and must not be employed at the coal face until he has been employed for at least 80 days on work below ground in mines in the United Kingdom and has otherwise satisfied Regulation 4.

† (1) Persons studying for an approved diploma or degree at an institution or university as mentioned in S. 9(6) of the Coal Mines Act, 1911, and the employers of such persons, are exempted from the requirements in Regulations 2 and 3, subject to the condition that every such person shall, before being employed in a coal mine on work below ground, have first spent not less than 20 working days below ground in a coal mine in receiving practical instruction in mining operations under the close personal supervision of an official of the mine or an instructor or supervising workman.

(2) All persons, and the employers of such persons, employed in or about any mine in respect of which the National Coal Board have granted a licence under S. 36(2) (b) of the Coal Industry Nationalisation Act, 1946, on the ground that coal present amongst other minerals thereat is of so small value that the working thereof is unlikely to be undertaken otherwise than ancillary to the working of those other minerals, are exempted from the requirements in Regulations 2 to 11 (both inclusive).

‡ M. & Q. Form No. 132.

3.*—Except as otherwise provided in a scheme approved by the Minister in pursuance of Regulation 10 of these Regulations, or in an exemption granted by the Minister in pursuance of Regulation 16 of these Regulations :—

(i) the training referred to in the preceding Regulation shall comprise adequate instruction in safe and efficient methods of work below ground and suitable physical training, given under and in accordance with a scheme approved by the Minister as aforesaid ;

(ii) all such training as aforesaid shall be given in the course of the normal working hours (excluding overtime) during which the person being trained can lawfully be employed in or about a mine ;

(iii) at least two hundred and sixty-four hours shall be spent in such training as aforesaid, of which at least one hundred and thirty-two hours shall be spent in practical instruction in and demonstrations of mining operations and at least one hundred and thirty-two hours in attending classes in subjects relating to mining operations and other subjects of educational value and in physical training ;

at least sixty-six hours of the time spent in practical instruction in and demonstrations of mining operations as aforesaid shall be spent in such instruction and demonstrations below ground in a suitable part of a mine ; such instruction shall be given only at a place specified for the purpose in the relevant scheme approved by the Minister as aforesaid ;

in reckoning such hours as aforesaid there shall be excluded the times properly and reasonably spent (whether above or below ground) at meals and in travelling ;

(iv) in the case of any person who has not attained the age of sixteen and a half years on the day on which he first receives any training as required by these Regulations, the training shall be spread as evenly as is practicable over a period of six months.

4.—(1) Without prejudice to the generality of the provisions of Regulation 1 of these Regulations, no person who has not been employed on work at the coal face shall be employed, otherwise than at a training face, on such work until :—

(a) such person has been employed for at least eighty working days on work below ground in a coal mine ;

(b) such person has spent at least sixty working days (whether

* Any person who has attained the age of 18 years, and the employer of any such person, is exempted from the requirement that his training shall comprise the matters and the numbers of hours specified in this paragraph. He must instead, during a period of not less than three weeks, receive training in pursuance of the Regulations comprising at least 112 hours, including at least 76 hours spent in practical instruction in, and demonstrations of, mining operations, and at least 30 hours spent in talks and discussions concerning subjects relating to mining operations. The present exemption expires on 31 December, 1951, but is subject to review.

or not part of such eighty working days as aforesaid) under the close personal supervision of an instructor or supervising workman in training (which shall comprise adequate instruction and practical training) at a training face in performing safely and efficiently one or more of the following operations, that is to say :—

- (i) the getting of coal, including the filling or loading of coal for removal from the coal face ;
- (ii) the building of packs or the withdrawal of supports from the waste, or, in a case in which packs are built and supports withdrawn from the waste in the mine in which such person is to be so employed, the building of packs and the withdrawal of supports from the waste ;
- (iii) the ripping of the roof or floor, including the building of roadside packs in a case in which such packs are built in the mine in which such person is to be so employed ;
- (iv) the shifting of mechanical conveyors and gate-end loaders ;
- (v) the use of machines for cutting coal or for getting and loading coal ;

provided that in a case in which a person is receiving such training in more than one of such operations the said minimum period of sixty working days shall be increased by twenty working days for each of such additional operations ; and

(c) there has been issued by a training officer appointed under these Regulations a certificate (in the prescribed form)* that such person has duly received such training as aforesaid and is competent to be employed at the coal face ;

† so however that in the case of any mine in which the working is wholly by the method known as longwall and less than five persons are at any one time being trained as aforesaid, such practical training may be carried out at a part of a coal-production face set aside for training purposes (which part shall, for the purposes of these Regulations, be deemed to be a training face) ; and in relation to every such case the provisions of this paragraph shall have effect subject to the following modifications :—

- (i) for the words " eighty working days " in sub-paragraphs (a) and (b) there shall be substituted the words " one hundred and ten working days " ;

* M. & Q. Form No. 133.

† An exemption provides that any number of persons aged 18 years or over may be trained at part-production faces in a mine worked wholly or partly by the longwall method and, subject to certain conditions, up to four juveniles may be trained in such circumstances, irrespective of the number of adults being trained. The minimum periods of experience and training are the same as those required for training at a fully-reserved face. This exemption expires on 31 December, 1951, but is subject to review.

(ii) the period to be spent in receiving training as specified in sub-paragraph (b) shall be increased by one half, as applicable ; and

(iii) the quantity of the work assigned to be done during every period of employment jointly by a supervising workman and a person under training whom he is supervising shall not be more than they can reasonably do, having regard to the requisite attention which must be given to training and to the experience of the person under training.

(2) Every person receiving training shall be given adequate instruction in the use of all tools, appliances and materials necessary for performing safely and efficiently the operation in which training is being given and in the methods of safely and efficiently performing the operation in respect of which he is receiving training.

(3) References in this Regulation to any operation shall be construed as including references to all such subsidiary and incidental work as is normally carried out in connection therewith in the mine in which the person is to be employed as aforesaid.

5.—(1) Without prejudice to the generality of the provisions of Regulation 1 of these Regulations, the supervision to be provided in pursuance of that Regulation :—

(a) for a person who has not been employed on work below ground in a mine to which the provisions of either the Coal Mines Act, 1911, or the Metalliferous Mines Regulation Act, 1872, apply and who is employed in a coal mine on work below ground otherwise than at the coal face, shall, during at least the first twenty working days of his employment below ground, be the close personal supervision of an instructor or supervising workman ;

(b) for a person who is employed at the coal face on any of the operations specified in sub-paragraph (b) of paragraph (1) of the last preceding Regulation on which he has not had the minimum training mentioned in that paragraph, shall be the close personal supervision for at least forty* working days of an instructor or supervising workman.

(2) The instructor or supervising workman who is to give the supervision mentioned in paragraph (1) of this Regulation shall be designated by name, either before or within four days after beginning to give the supervision, by the manager of the mine or a training officer appointed under these Regulations and given written notification (in the prescribed form)† by him of the person to be supervised and the work in

* An exemption provides that the manager, after consultation with the training officer, may terminate the supervision before 40 days have elapsed if he considers that further supervision is not necessary. This exemption expires on 31 December, 1951, but is subject to review.

† M. & Q. Form No. 134.

which he is to be supervised ; provided that during the temporary absence for a period not exceeding three consecutive working days of any instructor or supervising workman designated to supervise any person, his duties may be performed by some other instructor or supervising workman, in which case the training officer shall as soon as is reasonably practicable be notified of the name of such other instructor or supervising workman. If the absence of such instructor or supervising workman exceeds that period some other instructor or supervising workman shall be designated to give such supervision and shall be given such notification as aforesaid.

(3) The designation of any instructor or supervising workman to give the supervision mentioned in paragraph (1) of this Regulation may at any time be rescinded by the manager of the mine or a training officer appointed under these Regulations, in which case another instructor or supervising workman shall be designated to give the supervision and the provisions of paragraph (2) of this Regulation shall apply in respect of such designation.

(4) Except with the written permission of an inspector of mines, no instructor or supervising workman shall give the supervision mentioned in paragraph (1) of this Regulation to more than one person at the same time ; if such permission is refused the owner, agent or manager of the mine in which such supervision is being given may appeal to the Chief Inspector of Mines, who may either refuse or grant permission as he thinks fit.

Any permission granted under the provisions of this paragraph may be granted subject to such conditions (if any) as the inspector or, as the case may be, the Chief Inspector thinks fit, and may be revoked or from time to time varied by an inspector of mines or by the Chief Inspector.

6.—Nothing in Regulation 2 of these Regulations shall prevent a person being taken below ground for visits or demonstrations for training purposes, or for the purpose of being trained below ground at a place specified for the purpose of giving the instruction mentioned in Regulation 3 of these Regulations in the relevant scheme approved by the Minister in pursuance of Regulation 10 of these Regulations ; and nothing in Regulations 2, 4 and 5 of these Regulations shall affect the employment of any person as an official of a mine, or as a mechanic, electrician or other tradesman, or horsekeeper, or the employment of a person solely in surveying or measuring.

7.—(*Temporary provision now lapsed.*)

8.—(1) A copy of every such certificate as is mentioned in paragraph (c) of Regulation 2 of these Regulations and sub-paragraph (c) of paragraph (1) of Regulation 4 of these Regulations shall (unless an inspector of mines otherwise in writing permits) be kept at the mine at which for the time being the person to whom it relates is employed

and shall be so kept for as long as such person is employed there and, subject to the provisions of paragraph (3) of this Regulation, for at least twelve months after he has ceased to be so employed.

(2) A copy of every such notification as is mentioned in Regulation 5 of these Regulations shall be kept at the mine at which the instructor or supervising workman designated therein to give supervision is employed and shall be so kept for a period of at least twelve months from the day on which it was given.

(3) If any person to whom a certificate relates ceases to be employed at a mine or at any other mine in the same ownership, the mine owner of any other mine at which such person is next thereafter employed shall forthwith give notice of such employment to the mine owner of the mine at which he was lastly employed who shall forthwith send to such mine owner a copy of the certificate relating to such person if it is in his possession.

(4) Every such certificate and notification and every copy thereof kept at the mine as aforesaid shall be produced at any time on demand to an inspector of mines.

9.—In any proceedings in respect of the alleged employment of a person on any work in contravention of any of the provisions of the preceding Regulations it shall be a defence to prove :—

(i) that the person in question was so employed for the purpose of saving life or otherwise dealing with the results of an accident ; or

(ii) that his being so employed was urgently required, owing to unforeseen circumstances, in order to prevent serious interference with the safe working of the mine, and that he had such general experience and qualifications as made him suitable for employment in the work in question.

10.—(1) Before any person who in pursuance of these Regulations is required to receive any training as specified in these Regulations receives such training, or any part thereof, there shall have been submitted (after consultation with the appropriate local education authority in respect of the subjects in which attendance at classes is required and the conduct of such classes and in respect of physical training) to the Minister for his approval a scheme in relation to the mine in or about which such person is employed setting out particulars of the manner in which such training requirements will be carried out ; and no such training shall be given (or, if it is given, shall not be regarded as training for the purposes of these Regulations) except in accordance with the provisions of a scheme approved by the Minister (which as originally approved or subsequently varied in accordance with the provisions of this Regulation is referred to in this Regulation as an “approved scheme”).

(2) Without prejudice to the generality of the provisions of the preceding paragraph of this Regulation, every scheme shall specify detailed particulars of :—

(i) the subject matter of and the time to be allocated to the class work, the practical instruction and the physical training required to be given in pursuance of these Regulations before a person is employed in a mine on work below ground ;

(ii) where and at what times each kind of training is to be given, and the nature of the accommodation and equipment to be provided ;

(iii) the nature of the arrangements to be made which will secure adequate correlation between the class work and the practical training ; and

(iv) the arrangements for training persons for work at the coal face.

(3) The Minister may at any time revoke his approval of a scheme.

(4) An approved scheme may at any time, with the approval of the Minister, be varied ; and the Minister may at any time require an approved scheme to be varied as may be specified in the requirement.

(5) A scheme approved by the Minister and variations thereof approved by the Minister or specified in a requirement given by the Minister shall come into force on such day as the Minister shall specify in relation thereto ; and an approved scheme shall remain in force unless and until the Minister revokes his approval thereof.

11.—(1) Every person who, on the day on which these Regulations are made, owns a mine in or about which more than two hundred and fifty persons are normally employed shall, within nine months from such day, unless the Minister otherwise permits, either submit to the Minister for his approval a scheme as mentioned in the last preceding Regulation in relation to such mine or, if a scheme in relation to such mine has already been submitted to the Minister, notify the Minister thereof, specifying in such notification the name and address of the person who submitted the scheme together with sufficient particulars as will enable the Minister to identify such scheme.

(2) In the case of the transfer of the ownership of any such mine within such nine months as aforesaid, the scheme shall be submitted or, as the case may be, the notification made to the Minister (if it has not been submitted or made before the transfer) by the person acquiring the ownership of the mine.

12.—The owner, agent or manager of every mine at which any person who is required by or under these Regulations to receive training or supervision, or both, is employed shall make adequate arrangements for every such person to receive the requisite training or supervision, or both, and shall require him to receive it.

13.—(1) The owner, agent or manager of every mine at which any person who is required by or under these Regulations to receive training is employed shall keep or cause to be kept a record in respect of each such person showing in relation to each of the matters mentioned in paragraph (iii) of Regulation 3 of these Regulations the dates on which any such training was given to the person to whom the record relates and the number of hours occupied in such training on each of those dates.

(2) Every such record as aforesaid shall be kept at the mine at which the person to whom it relates is employed or, in a case in which the mine is not a large coal mine (as defined in Regulation 14 of these Regulations) and is not the only mine comprising the undertaking, at such place as may from time to time be approved by the inspector of mines for the division in which the mine is situate ; and every such record shall be kept at such mine or place, as the case may be, for a period of at least twelve months from the day on which the training to which it relates was duly completed.

(3) Every such record as aforesaid shall be produced at any time on demand to an inspector of mines.

14.—(1) Every person who carries on an undertaking comprising one or more mines shall, in accordance with the following provisions of this Regulation, appoint in writing, and keep appointed, a training officer or training officers to superintend the carrying out of the foregoing provisions of these Regulations in relation to the undertaking and shall notify in writing every such appointment to the Minister.

(2) If the undertaking comprises a coal mine in or about which more than one thousand persons are normally employed (in this Regulation referred to as a “ large coal mine ”) or two or more large coal mines, a full-time training officer shall be appointed for each such mine comprised in the undertaking.

(3) If the undertaking comprises both one or more large coal mines and also one or more other coal mines, in addition to the training officer appointed for each large coal mine a training officer shall be appointed for the other mine or mines and, if the number of persons normally employed in the undertaking in coal mining, excluding persons so employed in or about any large coal mines, exceeds one thousand, that training officer shall be a full-time officer.

(4) If the undertaking does not comprise any large coal mines, one training officer shall be appointed for the undertaking, and, if the number of persons normally employed in the undertaking in coal mining exceeds one thousand, he shall be a full-time officer.

(5) Where it appears to the Minister that, having regard to the special circumstances of any undertaking, it is expedient so to do, the Minister may require :—

(a) that one or more training officers, whether full-time or part-time, shall be appointed in addition to those required by the foregoing provisions of this Regulation ;

(b) that a full-time training officer shall in any particular case be appointed instead of a part-time training officer ;

(c) that any particular part-time training officer shall devote not less than such time as may be specified in the requirement to the performance of his duties as such.

(6) A training officer appointed in pursuance of this Regulation shall not be treated as other than a full-time training officer by reason only that, in addition to his duties as such, he performs other duties relating to the safety of persons employed in or about coal mines, or that, at any time while the number of workmen falling within sub-paragraphs (b) and (e) of paragraph (1) of the next following Regulation employed below ground, whether at the coal face or not, in the mine, mines or undertaking for which he is appointed does not exceed fifty, he performs other duties in relation to the mine, mines or undertaking.

(7) Where in pursuance of this Regulation a person appoints a part-time training officer, he shall notify to the officer in writing on what days or parts of days in each week the officer is to perform all or any of his duties as such ; a copy of every such notification, while it remains in force, shall be kept at every mine at which the officer to whom it relates is to perform his duties as such and shall be produced on demand to an inspector of mines.

15.—(1) The duties of a training officer shall include :—

(a) superintending the training and supervision carried out in pursuance of these Regulations on the premises of the undertaking or at the mine or mines for which he has been appointed ;

(b) keeping records of the training given on the premises of the undertaking or at the mine or mines for which he has been appointed to every person in pursuance of Regulations 3 and 4 of these Regulations and making weekly reports to the manager of the mine at which such person is employed on the progress of every such person during such time as in pursuance of those Regulations he is so training ;

(c) keeping records of the supervision given on the premises of the undertaking or at the mine or mines for which he has been appointed to every person in pursuance of Regulation 5 of these Regulations and making weekly reports to the manager of the mine at which such person is employed on the progress of every such person during such time as in pursuance of that Regulation he is being so supervised ;

(d) making recommendations to the manager of the mine as to the training of any person employed in or about the mine for employment on work of which he has had no experience ;

(e) making to the manager of the mine quarterly reports in writing on the progress of every person employed in the mine on work below ground, whether at the coal face or not, who has not had eighteen months' experience of work below ground in coal mines until he has had such experience for eighteen months;

(f) supervising the personal welfare, while they are at work, of persons employed in or about the mine who have had less than six months' employment in or about a mine.

(2) The records referred to in the preceding paragraph of this Regulation shall if the Minister so directs, be in a prescribed form and shall be kept at the mine at which the person, or persons, to whom they relate is, or are, employed or, in a case in which the mine is not a large coal mine (as defined in Regulation 14 of these Regulations) and is not the only mine comprising the undertaking, at such place as may from time to time be approved by the inspector of mines for the division in which the mine is situate; and every such record shall be kept at such mine or place, as the case may be, for a period of at least twelve months from the day on which it was made or, if there is more than one entry in a record from the day on which the last entry was made; in the case of any person to whom a record relates ceasing to be employed at a mine or at any other mine in the same ownership, the mine owner of any other mine at which such person is next thereafter employed shall forthwith give notice of such employment to the mine owner of the mine at which he was lastly employed who shall forthwith send to such mine owner such record or a copy thereof, in so far as it relates to the person so employed.

(3) Every record and report referred to in paragraph (1) of this Regulation and every copy thereof, shall be produced at any time on demand to an inspector of mines.

16.—(1) The Minister may, to such extent for such periods, on such terms and subject to such conditions (if any) as he may specify, grant an exemption in any case or class or description of cases, from compliance with all or any of the foregoing provisions of these Regulations; and may direct in any such exemption that other provisions as specified therein shall apply in respect of such case, or class or description of cases.

(2) An exemption granted under the preceding paragraph of this Regulation may provide that it shall only have effect so long as any provisions specified therein are complied with.

(3) Any exemption granted under the provisions of this Regulation may be revoked, or from time to time varied, by the Minister.

VENTILATION.

Coal Mines (Ventilation) General Regulations, 1947, No. 974.*

1.—Determinations shall be made of the percentage of inflammable gas present in the general body of the air (in these Regulations referred to as the " firedamp content ") in every ventilating district of a mine in which safety lamps are required to be used by the Act and in which electrical power is used at or within fifty yards of the face.

Such determinations shall be made in accordance with the provisions of the three next following Regulations.

2.—(1) Determinations shall be made :—

(a) by means of apparatus of a type approved for the purpose by the Minister ; or

(b) by analysis of samples of air.

(2) Determinations made by any such apparatus as aforesaid shall be made by a competent person appointed in writing for the purpose by the manager ; in the case of determinations made by the analysis of samples of air, the samples shall be taken by a competent person as aforesaid, and shall be analysed within four days of the taking thereof.

(3) In reckoning the period of four days as aforesaid, no account shall be taken of any Saturday, Sunday or day of general holiday.

3.—Determinations shall be made or, as the case may be, samples of air taken :—

(a) in respect of each air current in every longwall face working from which coal or other mineral is being won :—

(i) at, or as near as practicable to, a point in the airway ten yards on the return side of the last working place ; and

* Regulation No. 18 defines, for the purpose of these Regulations, certain words as follows :—

" auxiliary fan " means a forcing fan, or an exhaust fan, used below ground wholly or mainly for ventilating a heading, drift or blind end ;

" face " means, in relation to a seam, the exposed surface from which coal or other material is won ;

" face working " means, in relation to a face at which supports are systematically withdrawn, all that part of the mine between the face and the front line of the packs (if any) or the last row of the supports for the time being maintained whichever is the farther from the face ; and means, in relation to a face at which supports are not systematically withdrawn, all that part of the mine between the face and a line parallel to it and twelve feet distant from it ;

" firedamp content " has the meaning assigned to it by Regulation one of these Regulations ;

" measuring points " has the meaning assigned to it by Regulation six of these Regulations ;

" road " means any part of a passage which is maintained in connection with the working of the mine, except that part which is within ten yards of the face.

- (ii) at, or as near as practicable to, a point in the airway ten yards on the intake side of the first working place ;
- (b) in respect of each air current in every section of workings from which coal or other mineral is being won otherwise than by the longwall method, at suitable points, fixed by the manager, in the airways of each section of the workings ; so however that if the Inspector of the Division is of opinion that the location of any of such points is unsuitable, the manager shall fix some other point or points in substitution therefor.

Determinations shall be made or samples taken, if the Inspector of the Division so requires, in respect of every such air current as aforesaid, at any one point, fixed by that Inspector, in the air current.

4.—(1) Determinations shall be made or, as the case may be, samples of air taken once in every week ; so however that if any determination shows a firedamp content exceeding 0.8 per centum determinations shall be made or samples of air taken, unless the Inspector of the Division otherwise permits, at intervals not exceeding twenty-four hours for so long as such content exceeds that percentage and for the seven next following working days, and that if no determination made during the month immediately preceding any day has shown a firedamp content exceeding 0.6 per centum, it shall be sufficient to make such determinations or take such samples once in every month for so long as such content does not exceed that percentage :

Provided that in any case in which any alteration is made in the arrangements for ventilating a mine, or any part thereof, which affects a ventilating district in which in pursuance of Regulation one of these Regulations determinations have to be made of the firedamp content, a determination of the firedamp content of the air current at any point so affected shall be made as soon as practicable after the making of such alteration.

(2) Such determinations shall be made or, as the case may be, samples taken during the latter part of the cutting shift, if the face is machine-cut or during the latter part of the filling shift if the face is not machine-cut :

Provided that if it is established that the firedamp content is normally greatest at any other stage of the cycle of operations, such determinations may be made and samples taken at such stage with the consent of the Inspector of the Division and shall be made or taken at such stage if required by such Inspector.

(3) If the Inspector refuses or revokes his consent, or if the manager objects to any requirement of the Inspector, under the last preceding paragraph, the matter shall be settled in manner provided by the Act for settling disputes.

(4) Determinations made or samples taken once in every week or month as aforesaid shall, as far as practicable, be made or taken during the last cutting or, as the case may be, filling shift of the working week.

(5) For the purposes of this Regulation the expression "working week" means the period of seven days beginning on a Saturday.

5.—(1) Particulars of every determination made in pursuance of and in accordance with the provisions of the foregoing Regulations shall be recorded as soon as practicable in a book to be kept at the mine for the purpose.

(2) Every determination showing a firedamp content in excess of one per centum shall, unless such excess was caused by a temporary derangement in the ventilation which has been remedied, or unless the Inspector of the Division otherwise permits, be reported in writing forthwith to the Inspector of the Division.

6.—The points at which the quantity of air shall be measured in pursuance of subsection (2) of section twenty-nine of the Act (in these Regulations referred to as the "measuring points") shall be:—

(a) in the main intake airways of every seam, at a point as near as practicable to the downcast shaft;

(b) in every split, at, or as near as practicable to, the point at which the split commences;

(c) in every ventilating district in which in pursuance of Regulation one of these Regulations determinations have to be made of the firedamp content, at the same points in the airways (except in the air current in a longwall face working) as those at which determinations have to be made or, as the case may be, samples of air taken; and such measurements shall be made on one of the occasions when such determinations or samples are being made or taken;

(d) in every ventilating district in which determinations have not to be made of the firedamp content, at, or as near as practicable to, a point one hundred yards back from the first working place at the face which the air enters.

7.—In any case in which any alteration is made in the arrangements for ventilating a mine, or any part thereof, which substantially affects, or is likely so to affect, the quantity of air passing any measuring point, such quantity shall be measured as soon as practicable after the making of such alteration.

8.—Particulars of every measurement made in pursuance of the two last preceding Regulations, and such other information in relation to the quantity of air as may be prescribed, shall be recorded forthwith in a book to be kept at the mine for the purpose.

9.—(1) Every fan shaft brought into use at a mine on or after the date of the coming into force of these Regulations, and, if so required by the Inspector of the Division, any fan shaft in use at a mine before that date shall, if ordinarily used for winding, be provided with a properly constructed air-lock:

Provided that, in the case of a fan shaft in use at a mine before the aforesaid date, if the manager objects to any such requirement, the matter shall be settled in manner provided by the Act for settling disputes.

(2) The provisions of this Regulation shall not apply to a small mine or to any mine exempted by the Minister on the ground that he is satisfied that such provisions are inappropriate to that mine or that it is not reasonably practicable to comply with them in that mine.

10.—(1) Every road which is a connection between :—

(a) a main intake airway and a main return airway ; or

(b) an intake airway and a return airway in either of which airways the quantity of air is required by these Regulations to be measured ; shall, until it has ceased to be required for the working of the mine and has been sealed off, be provided with at least two effective doors ; so however that if, owing to any special circumstances, it is impracticable to provide two such doors, other means of effective separation shall be provided by the manager.

(2) All other roads in which doors or sheets are used to prevent short-circuiting of the air current shall be provided with at least two doors or if it is not practicable in any case to provide two doors, with at least one door and one sheet or with two sheets. Doors and sheets shall be so spaced that whenever one door or sheet is opened, at least one other door or sheet serving the same purpose can be kept shut ; so however that if it is impracticable so to space such doors and sheets the best measures possible in the circumstances shall be taken to minimise leakage of air.

11.—(1) Every ventilation door shall be maintained in efficient working order and in good repair.

Every such door shall be self-closing ; and whenever opened it shall be closed as soon as possible and shall not be propped or fixed so as to remain open. If not in use, every such door shall be taken off its hinges and placed in a position in which it will not cause any obstruction to the air current.

(2) Every ventilating sheet shall be maintained in efficient working order and in good repair, and, in mines where naked lights are used, shall be made of fire-resisting material. Whenever any such sheet is moved it shall be replaced as soon as possible.

12.—Any road connecting an intake and a return airway which has ceased to be required for the working of the mine shall be effectively sealed forthwith.

13.—The installation and maintenance of every fan installed below ground shall be supervised and controlled by a competent person appointed in writing for the purpose by the manager ; and no such fan shall be started, stopped, removed, or in any way altered, repaired or

interfered with except by or on the authority of the deputy in charge of the district or some other qualified official of the mine who, before starting any fan, shall satisfy himself that it is safe to do so.

14.—(1) Every auxiliary fan :—

(a) shall be installed and worked in such a manner that :—

- (i) a sufficient quantity of air shall at all times reach it so as to ensure that it does not re-circulate air ;
- (ii) there is no risk of the air which it circulates being contaminated by any substantial quantity of noxious fumes or dust ;

(b) shall, whether driven electrically or otherwise, be efficiently connected with earth so as to prevent the accumulation of an electro-static charge ;

(c) shall have an air-duct for conducting the air to or from the face of the heading, drift or blind end ; and such air-duct shall be maintained in such condition as will minimise leakage of air and will ensure adequate delivery of the air to within fifteen feet of the face.

(2) Any forcing auxiliary fan shall be installed on the intake side of and any exhaust auxiliary fan on the return side of the place which it is to ventilate, and there shall be a minimum distance of fifteen feet between the fan and that side of the place which is nearer to the fan :

Provided that where two or more auxiliary fans are installed in series, only the first fan must be installed at not less than the minimum distance aforesaid.

(3) The manager shall, in respect of every auxiliary fan, fix the minimum quantity of air to be delivered or exhausted per minute at the end of the air duct ; and shall appoint in writing a competent person who shall report at least once in every week to the manager the quantity of air delivered or exhausted as aforesaid and whether or not there is any re-circulation of air.

(4) Except in stone drifts, advancing headings ventilated by an auxiliary fan shall, so far as practicable, be interconnected ; and the manager shall specify the maximum distance :—

(a) to which any heading may be advanced in front of the last through connection before a new connection is driven ; and

(b) to which any face may be advanced beyond the auxiliary fan used for its ventilation.

(5) In respect of any section of narrow or panel workings the ventilation of which involves the use of two or more auxiliary fans drawing air from the same air current, a plan shall be prepared showing the general system of ventilation and the directions and quantities of the air currents ; and a copy thereof, and of any subsequent plan showing any change in that system, shall be delivered as soon as practicable

to the Inspector of the Division, who may at any time require the system to be modified and such precautions as are specified by him to be taken:

Provided that if the manager objects to any such requirement, the matter shall be settled in manner provided by the Act for settling disputes.

(6) No workman shall enter or remain in any place which is dependent for its ventilation on an auxiliary fan unless such fan is operating efficiently, or after the ventilation of such place has been interrupted, whether by stoppage of the fan or otherwise, except for so long as he is permitted to do so by the deputy in charge of the district or some other qualified official either for the purpose of attending to the fan or restoring the ventilation or after the said official has inspected the place and found it safe.

15.—(1) No fan (other than an auxiliary fan) may be installed below ground unless and until, as the result of a survey of the ventilation of every part of the mine liable to be affected made at the time by a qualified person and of a report as to the appropriate type, size and location of the proposed fan prepared by a qualified engineer, the manager is satisfied that it is necessary or expedient for the proper ventilation of that part of the mine that it should be installed.

(2) Notice that a fan (other than an auxiliary fan) has been installed below ground shall be sent forthwith, together with particulars of the survey and a copy of the report, to the Inspector of the Division.

(3) For the purposes of the preceding paragraphs of this Regulation the movement of a fan from one ventilating district to another shall be deemed to constitute an installation.

(4) The Inspector of the Division may at any time require that the use of any fan (other than an auxiliary fan) installed below ground shall be discontinued and may require other arrangements to be made and such precautions as are specified by him to be taken: and the manager shall comply with the requisition unless he disputes the reasonableness thereof in which case the dispute shall be settled in manner provided by the Act for settling disputes.

16.—The Chief Inspector of Mines may, except in any case in which provision is made by these Regulations for exemption being granted by the Inspector of the Division, exempt any mine or part thereof or any specified class or description of mines from the application of the provisions of these Regulations, or any of them, if he is satisfied that compliance therewith is inappropriate or not reasonably practicable in the circumstances of the case.

17.—The provisions of section one hundred and nineteen of the Act shall apply to any exemption granted and approval given by the Minister, or the Chief Inspector of Mines, and to any consent and direction given and requirement made by the Inspector of the Division, under these Regulations as they apply to any exemption granted by the Inspector of a Division.

WINDING AND HAULAGE.

Coal Mines General Regulations (Winding and Haulage), 1937, No. 143.

PART I.

PRECAUTIONS AGAINST OVERWINDING, ETC.

1.—(Amends S. 40 (2) of the Coal Mines Act, 1911—see page 13.)

2.—Unless the automatic contrivance is in full and fixed engagement with the winding engine, it shall be fully engaged either automatically or by the winding engineman whenever persons are to be raised or lowered, and a proper automatic indicator to show that this has been done shall be provided in such a position as to be easily seen by the banksman ; and no person shall be allowed to enter either cage until the indicator shows that the automatic contrivance has been fully engaged.

3.—(Amends S. 40(10) of the Coal Mines Act, 1911—see page 13.)

4.—Tests of the automatic contrivance and the brakes shall be made, by a competent person appointed in writing by the manager, in the following manner :—

(i) Once at least in every week by raising the cage or the cages in turn to pass the last control point above the surface landing.

(ii) Once at least in every three months by attempting to land the descending cage at excessive speed. For the purpose of this test the setting of the automatic contrivance may be altered so that a predetermined point in the shaft is regarded as the landing.

5.—(1) Once at least in every six months all cage chains and detaching hooks in general use shall be annealed or given other proper heat treatment and shall be thoroughly examined by a competent person.

Provided that the Chief Inspector of Mines may, by certificate in writing, exempt from the foregoing requirement as to heat treatment chains or hooks made of any steel which does not require heat treatment.

(2) All detaching hooks in general use shall be dismantled, cleaned and refitted once at least in every three months.

(3) All detaching plates and bells in general use shall be tested monthly by calipers or gauges.

PART II.

WINDING ROPES.

6.—(Amended S. 40(5) of the Coal Mines Act, 1911, but since superseded by No. 1 of the Coal Mines (Winding and Haulage) General Regulations, 1948.)

7.—A competent person appointed in writing by the manager shall, once at least in every month, make a special examination of every winding rope in use.

The rope shall be thoroughly cleaned at all places particularly liable to deterioration and at other places not more than 100 yards apart throughout its length, and at each of these places after cleaning, examination shall be made of the circumference and surface condition of the rope and for any fractures of the wires.

PART III.

METHOD OF CAPPING OF WINDING AND HAULAGE ROPES.

(SECTION 40(5) AND 46(1).)

8.—No mode or type of capping shall be used which fails to withstand, for a winding rope, a load of at least seven times the maximum static load and, for a haulage rope, a load of at least 60 per cent. of the breaking strain of the rope.

9.—A competent person appointed in writing by the manager shall, whenever a rope is capped or re-capped, superintend the work, and see that it is properly carried out.

10.—Before each re-capping a length, including the capping, of at least six feet shall be cut off the rope, but if the rope is re-capped after an interval of less than six months, the length cut off may be reduced by one foot for each complete month less than six, to a minimum of three feet.

Provided that this requirement shall not apply in respect of any rope purchased prior to 1st April, 1937, which is too short to permit of the full length prescribed being cut off.

Each piece of rope cut off shall be opened up and its internal condition examined by a competent person approved by the manager.

11.—The capel of a round rope shall not be attached to the rope by rivets passing through the rope.

12.—In those forms of capping in which the wires at the end of the rope are bent back on the rope itself to form a cone, wedges formed by the lapping of soft iron wire shall be placed between the rope and that portion which is bent back. The length of the tapered portion of the socket shall be not less than eight times the diameter of the rope.

13.—If white metal is used in the capping of ropes,

(a) Its melting point shall not exceed 570° Fahr. and its temperature when poured into the socket shall not exceed 685° Fahr.*

* The capping metal specified, and the method of capping described in British Standard Specification No. 643, 1935, are advised.

(b) In the length of rope which is to lie within the tapered part of the socket the fibre core, if any, shall be cut out and the wires shall be untwisted and thoroughly cleaned.

(c) The socket shall be heated to a temperature of about 212° Fahr. before the white metal is poured into it.*

14.—Numbers 9, 10, 11 and 12 of these Regulations shall not apply in the case of ropes used only for the hauling of mineral.

PART IV.

GENERAL.

15.—There shall be recorded in a book kept at the mine dated reports and other information relating to the measures taken to comply with :—

(a) Numbers 4 and 5 of these Regulations, and every such record shall be preserved for a period of 12 months after the report or other information was recorded ; and

(b) Numbers 6, 7 and 10 of these Regulations, and every such record shall be preserved for a period of 12 months after the rope to which it relates has ceased to be used.

Coal Mines (Winding and Haulage) General Regulations, 1948, No. 302.

1.—(Amends S. 40(5) of the Coal Mines Act, 1911—see page 13.)

2.—(Amends S. 44 (1) of the Coal Mines Act, 1911—see page 15.)

* The capping metal specified, and the method of capping described in British Standard Specification No. 643, 1935, are advised.

PART THREE

STATUTORY CERTIFICATES OF QUALIFICATIONS.

INTRODUCTORY NOTE.

This Part of the volume is intended primarily for the information and guidance of mining teachers and prospective applicants for statutory certificates of qualifications. It includes, therefore, all the matters which come within the province of the Mining Qualifications Board.

An effort has been made to ensure that each item is as informative as possible, but if further details are required about any particular point an inquiry should be sent to The Secretary, The Mining Qualifications Board, 7 Millbank, London, S.W.1.

A. MINING QUALIFICATIONS BOARD.

Coal Mines (Mining Qualifications Board) General Regulations, 1950 No. 77.

1.—(Amends S. 8(1) of the Coal Mines Act, 1911, to provide for the substitution of the Mining Qualifications Board for the Board for Mining Examinations—see page 3.)

2.—(Amends S. 9(1) and (2) of the Coal Mines Act, 1911, to empower the Mining Qualifications Board to make rules prescribing the qualifications to be possessed by applicants for certificates of competency and for any other certificates of qualifications required by the Act or by regulations made under the Act—see page 3.)

3.—(Amends S. 10(1) of the Coal Mines Act to provide for the grant of Certificates of Competency to persons with qualifications exempting them from the Board's examinations, and makes a verbal amendment to S. 10(4)—see page 5.)

4.—(Provides for rules made by the Board for Mining Examinations to remain in force, as if they were rules of the Mining Qualifications Board, until varied or revoked by that Board.)

5.—(Provides for references to the Mining Qualifications Board to be substituted for references to the Board for Mining Examinations in the Coal Mines (Prescription of Qualifications of Surveyors) Order, 1942.)

B. CERTIFICATES OF COMPETENCY.

Coal Mines (Certificates of Competency) General Regulations, 1950, No. 743.

These Regulations amend Sections 2(2), 3(2), 5(1) and (2), and 7 of the Coal Mines Act, 1911—see pages 1, 2 and 3. The Act applies to mines

of stratified ironstone, shale and fireclay as well as to mines of coal, and the object of these amendments is to provide that there may be certificates of competency limited to mines of any one of these minerals. At the present time the only limited certificate is for mines of stratified ironstone.

Rules of the Mining Qualifications Board—General.

(Note.—This is a consolidated version of the general Rules applicable to all applicants for Certificates of Competency. It embodies the Principal Rules, known as the Coal Mines (Certificates of Competency) Rules, 1933, and amending Rules known as the Mining Examinations (Certificates of Competency) Rules, 1942, 1950 and 1951. There are separate Rules relating to standards of general education and to National Service candidates—see pages 164 and 166.)

1.—An applicant for a First-Class Certificate of Competency (hereinafter called a First-Class Certificate) must be at least 21 years of age, and an applicant for a Second-Class Certificate of Competency (hereinafter called a Second-Class Certificate) at least 21 years of age, on the first day of examination,* and in every case an applicant must furnish to the Mining Qualifications Board (hereinafter called the Examining Board) the following testimonials and certificates of his preliminary qualifications :—

- (i) Satisfactory testimonials, on forms provided for the purpose, of his sobriety and general good conduct ;
- (ii) A certificate of proficiency in First-Aid from a Society or Body approved by the Minister† ; and

‡(iii) A Fireman's Certificate which for the purposes of this Rule means a Certificate from a Mining School or other institution or authority approved by the Minister as to his ability to make accurate tests (so far as practicable with a safety lamp) for inflammable gas and to measure the quantity of air in an air current and that his hearing is such as to enable him to carry out his duties efficiently.

2.—(1) Subject to any reduction determined upon by the Mining Qualifications Board, an applicant for any certificate of competency must satisfy that Board that he has had not less than five years' practical experience in mining (including experience at the working face and at other parts of underground workings).

(2) The practical experience aforesaid must—

* S. 10(1) of the Coal Mines Act, 1911, provides, however, that an applicant shall not be registered as the holder of a First-Class or Second-Class Certificate until he attains the age of 23—see page 5.

† For list of approved societies and other bodies see page 195.

‡ The Board will also accept the Gas Testing and Hearing Certificate which is to be introduced early in 1952 to meet the amended provisions of S. 15 of the Act (see page 8), which come into operation on 1st June, 1952.

(a) include the performance or responsible control, during periods amounting in all to not less than two years, of—

- (i) the getting of minerals (by hand or mechanical methods) or work at the face directly connected with such getting ;
- (ii) stonework ;
- (iii) timbering ; and
- (iv) repairing ;

(b) be experience either wholly in one or more mines in the United Kingdom to which the Coal Mines Act, 1911, applies, or partly in one or more such mines and partly in one or more mines (wherever situate) of coal, stratified ironstone, shale or fireclay, with respect to which the Mining Qualifications Board are satisfied that it or they provided equivalent experience ;

(c) in relation to a certificate of competency valid only with respect to mines of a specified class or description, include not less than three years' experience in one or more mines of that class or description.

3.—(1) Each applicant for any certificate of competency must qualify at a written examination in accordance with the following provisions of these rules.

(2) As part of the said examination, the Examining Board may, in the case of any applicant, require him to present himself for an interview related to any one or more subjects on which for the purposes of the examination he has submitted written answers.

4.—An applicant for a First-Class Certificate shall be required to possess such a knowledge of mathematics, physics (including electricity), chemistry, geology, and engineering science as will enable him to qualify at a written examination in relation to mines under the Coal Mines Act, 1911, on the subjects in the following syllabus :—

(i) *Winning and Working.* The geology of coal and other stratified deposits. Boring and sinking. Systems of laying-out and working under varying conditions. The application of machinery to mining. Methods of supporting roof and sides. Blasting and general knowledge of explosives and other means of getting minerals.

(ii) *Theory and Practice of Ventilation.* The properties, identification and practical estimation of gases met with in mines. Sources, effects and control of heat in mines. Natural ventilation, fans and other ventilators. The distribution and control of the air underground. Stoppings and air crossings. Construction, use and testing of safety lamps.

(iii) *Explosions, Underground Fires and Inundations, their Causes and Prevention.* Gas. Coal-dust. Spontaneous heating. Rescue operations, apparatus and organization. Recovery of

mires after explosions, fires and inundations. Precautions in approaching disused workings and mining under waterlogged strata against water, old workings, or gas.

(iv) *Machinery.* For winning, hauling, pumping, mechanical coal-cutting and conveying, etc. Generation and transmission of power; mechanical, steam, compressed air, hydraulic, electrical. Strengths of materials.

(v) *Surveying, Levelling and Drawing.* Magnetic declination. Loose and fast needle dialling. Calculation of areas and volumes. Contour lines and levelling. Traversing with the theodolite under ground and on the surface. Connecting of surface and underground surveys. Triangulation. Mine plans and sections. The use, care and testing of instruments.

Each applicant must produce a plan of a mine survey and a section prepared from an underground levelling made and drawn by himself with the original plottings and the notes from which the plottings have been made, and the work must be certified by him and by the manager as having been carried out by himself. The plan and section must have been made and drawn within such period before the date of the examination, as the Examining Board may determine.

(vi) *General Management and Mining Legislation.* Lay-out and organisation of surface arrangements under varying conditions. First-aid and ambulance work. Legislation relating to safety, health and hours of employment. General Regulations and Orders. Writing of reports.

so however that, in the application of this rule to any applicant for a certificate valid only with respect to mines of stratified ironstone, there shall be substituted for the foregoing subjects the subjects specified in the first part of the schedule to these rules.

5.—An applicant for a Second-Class Certificate shall be required to qualify at a written examination on the undermentioned subjects, in relation to mines under the Coal Mines Act, 1911, in which the questions set will be of a nature suitable for practical working miners:—

(i) *Methods of working.* Systems of laying out and working, under varying conditions, of coal and other stratified deposits. The application of machinery to mining. Methods of supporting roof and sides. Shot-firing.

(ii) *Ventilation.* The properties, identification and practical estimation of gases met with in mines. Natural ventilation, fans and other ventilators. The distribution and control of the air under ground. Stoppings and air crossings. Measurement of air currents. Construction, use and testing of safety lamps.

(iii) *Explosions, Underground Fires and Inundations.* Causes and prevention. Gas. Coal-dust. Spontaneous heating. Rescue operations, apparatus and organization. Precautions in approaching disused workings and mining under waterlogged strata. Recovery of mines after explosions, fires and inundations.

(iv) *Machinery*. Machinery and plant in common use at a colliery, including the use of electricity, and with special reference to safety.

(v) *Surveying and Levelling*. Elementary surveying and levelling. Arithmetic (calculation of areas and the volumes of simple solids).

(vi) *Mining Legislation*. Legislation relating to safety, health and hours of employment. First aid and ambulance work. General Regulations and Orders. Writing of reports.

so however that, in the application of this rule to any applicant for a certificate valid only with respect to mines of stratified ironstone, there shall be substituted for the foregoing subjects the subjects specified in the second part of the schedule to these rules.

6.—(a) The maximum marks at a written examination for a First-Class Certificate shall be as follows :—

Subject 1.—Winning and working	...	...	...	250
„ 2.—Theory and practice of ventilation	...	...	...	200
„ 3.—Explosions, underground fires and inundations	...	...	...	130
„ 4.—Machinery	...	...	...	150
„ 5.—Surveying, levelling and drawing	...	...	...	140
„ 6.—General management and mining legislation	...	...	...	130
Total				1,000

(b) The maximum marks at a written examination for a Second-Class Certificate shall be as follows :—

Subject 1.—Methods of working	...	...	...	250
„ 2.—Ventilation	...	...	...	250
„ 3.—Explosions, underground fires and inundations	...	...	...	200
„ 4.—Machinery	...	...	...	100
„ 5.—Surveying and levelling	...	...	...	100
„ 6.—Mining legislation	...	...	...	100
Total				1,000

so however that, with respect to a certificate valid only with respect to mines of stratified ironstone, the maximum marks for any subject shall be the number appearing in parenthesis in relation to that subject in the second part of the schedule aforesaid.

(c) An applicant shall be deemed to have qualified at a written examination if he obtains 40 per cent. or more of the maximum marks for each subject, and 57.5 per cent. or more of the maximum marks upon the six subjects collectively.

(d) An applicant who fails to obtain 40 per cent. of the maximum

marks in one subject or in two subjects, but who nevertheless obtains 60 per cent. or more of the maximum marks upon the six subjects collectively shall be eligible to be re-examined at the next succeeding written examination in the respective subject or subjects in which he so failed, and if he then qualifies in such subject or subjects he shall be deemed to have qualified at a written examination.

7.—(Revoked.)

8.—An applicant who is eligible, but by reason of illness is unable to attend to be re-examined under the provisions of Rule 6 (d), may (if the Examining Board in their discretion so decide) for the purposes of such provisions attend the next respective succeeding examination.

SCHEDULE.

MINES OF STRATIFIED IRONSTONE.

PART I.

First-Class Certificates.

1. *Winning and Working.* Geology of stratified ironstone deposits ; boring and sinking ; systems of laying out and working under varying conditions ; application of machinery to mining ; methods of supporting roof and sides ; blasting ; general knowledge of explosives and other means of getting minerals.

2. *Theory and Practice of Ventilation.* Properties, identification and practical estimation of gases met with in mines of stratified ironstone ; natural ventilation, fans and other ventilators ; distribution and control of air underground (including stoppings and air crossings) ; construction, use and testing of safety lamps.

3. *Explosions, Underground Fires and Inundations (causes and prevention).* Gas ; rescue operations, apparatus and organization ; recovery of mines after explosions, fires and inundations ; precautions against water, gas and other dangers in approaching disused workings and in mining under waterlogged strata or old workings.

4. *Machinery.* Machinery for winding, hauling, pumping, breaking ground and conveying, etc. ; generation and transmission of power (mechanical, steam, compressed air, hydraulic, electrical) ; strength of materials.

5. *Surveying, Levelling and Drawing.* Magnetic declination ; loose and fast needle dialling ; calculation of areas and volumes ; contour lines and levelling ; traversing with theodolite under ground and on surface ; connecting of surface and underground surveys ; triangulation ; mine plans and sections ; use, care and testing of instruments. *Each applicant must produce a plan of a mine survey and a section prepared from an underground levelling, made and drawn by himself, with the original plottings and the notes from which the plottings have been made, and the work must be certified by him and by the manager as*

having been carried out by himself. The plan and section must have been made and drawn within such period before the date of the examination as the Examining Board may determine.

6. *General Management and Mining Legislation.* Lay-out and organization of surface arrangements under varying conditions ; first aid and ambulance work ; legislation (including general regulations and orders) relating to safety, health and hours of employment in mines of stratified ironstone ; writing of reports.

PART II.

Second-Class Certificates.

1. *Methods of Working.* Systems of laying out and working stratified ironstone deposits under varying conditions ; application of machinery to mining ; methods of supporting roof and sides ; shot-firing. (300.)

2. *Ventilation, Explosions, Fires and Inundations.* Properties, identification and estimation of gases met with in mines of stratified ironstone ; natural ventilation, fans and other ventilators ; distribution and control of air underground (including stoppings and air crossings) ; measurement of air currents ; construction, use and testing of safety lamps ; explosions and fires (causes and prevention) ; rescue operations, apparatus and organization ; precautions against water, gas and other dangers in approaching disused workings and in mining under water-logged strata or old workings ; recovery of mines after explosions, fires and inundations. (300.)

3. *Machinery.* Machinery and plant in common use at a mine of stratified ironstone (including use of electricity, and with special reference to safety). (200.)

4. *Surveying and Levelling.* Elementary surveying and levelling ; arithmetic (calculation of areas and volumes of simple solids). (100.)

5. *Mining Legislation ; First Aid ; Reports.* Legislation (including general regulations and orders) relating to safety, health and hours of employment in mines of stratified ironstone ; first aid and ambulance work ; writing of reports. (100.)

Rules of the Mining Qualifications Board—General Education.

(Note.—These Rules were made on 21st June, 1935, and they apply to all applicants who were born after 21st June, 1918. They require that before a person can attend the Board's examinations he must furnish evidence of having reached the required standard of general education, and this will usually mean producing one of the certificates described in the Schedules to the Rules. Such certificate should preferably be obtained before undertaking a specialised course in mining, and when it has been obtained it should be sent to the Secretary to the Board for registration. It should be noted that the Board intends to make Rules adding the new General Certificate of Education at the Ordinary Level (provided it includes

English, Mathematics and one other subject) to the list of certificates which will be accepted.)

1.—Save as is hereinafter expressly provided, as from the date of these Rules no person shall be qualified to be an applicant for a Certificate of Competency unless he shall satisfy the Examining Board that the standard of his general education is at least that attained by the average boy who, after attendance at school until the statutory leaving age, has for a period of two years attended evening classes conducted or controlled by an education authority in Great Britain in English, Mathematics, Drawing and Science, which said standard is hereinafter referred to as "the prescribed standard".

2.—In order to satisfy the Examining Board that his general education has attained the prescribed standard an applicant shall, save as is hereinafter expressly provided, produce to the Examining Board, in addition to the testimonials and certificates of his preliminary qualifications required by Rule 1 of the Mining Examinations (Certificates of Competency) Rules, 1933*, either:—

(a) one of the Certificates named in the First Schedule hereto ;
or

(b) a Certificate granted or endorsed by one of the bodies specified in the Second Schedule hereto or any other education authority or body approved by the Examining Board certifying that the applicant has passed an examination which in the opinion of the Examining Board indicates that the prescribed standard has been attained.

3.—The Examining Board may, in their discretion, dispense with the production of any such certificate as is referred to in Rule 2 hereof in any case where they are satisfied, on the ground that the applicant was educated outside Great Britain, or on other exceptional grounds, that it would be unreasonable to require the production of any such certificate, and the applicant can produce evidence which in the opinion of the Examining Board indicates that his general education has attained the prescribed standard.

4.—Nothing in these Rules shall apply

(a) to an applicant who on the date of the Rules was 17 years of age or upwards ; or

(b) to an applicant who holds an approved degree or an approved diploma.

5.—The Interpretation Act, 1889 (52 & 53 Vict. c. 53), applies for the purpose of the construction of these Rules as it applies for the purpose of the construction of an Act of Parliament.

* See page 159.

FIRST SCHEDULE.

(Certificates which without prescription as to particular subjects will be accepted as evidence that the holder has attained the prescribed standard of general education.)

- School Certificate of the Oxford and Cambridge Schools Examination Board.
- School Certificate of the Oxford Delegacy for Local Examinations.
- School Certificate of the Cambridge Local Examination Syndicate.
- Certificate of the ordinary Matriculation Examination of any University in Great Britain.
- Certificate of the General School Examination of the University of London.
- School Certificate of the University of Durham.
- School Certificate of the Northern Universities Joint Matriculation Board.
- School Certificate of the University of Bristol.
- School Certificate of the Central Welsh Board.
- Day School Certificate (Higher) of the Scottish Education Department (or the Leaving Certificate of that Department).

SECOND SCHEDULE.

(Information as to which of the Certificates issued by these bodies will be accepted can be obtained from the bodies concerned, or from Local Technical Institutes or Mining Classes. The Certificates must cover English, Mathematics, Drawing and Science.)

- Northern Counties Technical Examinations Council,
43 Eldon Place, Barras Bridge, Newcastle-upon-Tyne, 2.
- Yorkshire Preliminary Mining Examinations Board,
County Hall, Wakefield.
- Union of Lancashire and Cheshire Institutes,
33 Blackfriars Street, Manchester, 3.
- East Midland Educational Union,
32 Dryden Street, Nottingham.
- Union of Educational Institutions,
25A Paradise Street, Olton, Birmingham, 1.
- Kent County Examinations Board,
Springfield, Maidstone, Kent.
- Advisory Council for Technical Education in South Wales and Monmouthshire,
8 Museum Place, Cardiff.
- East of Scotland Joint Committee for Mining Preliminary Examinations,
Heriot-Watt College, Edinburgh, 1.
- West of Scotland Joint Committee on the Organization of Classes in Science
and Technology,
Royal Technical College, Glasgow, C.1.

Rules of the Mining Qualifications Board—National Service Candidates.

(Note.—These Rules were made on 16th July, 1942. They modify the General Rules (page 159) in their application to persons who have performed National Service as defined in S. 9(6) of the Coal Mines Act, 1911—see page 3.)

1.—(Amends Nos. 1, 2 and 4 of the Principal Rules.)

2.—The Principal Rules shall, in the case of an applicant who has performed National Service for such period as is hereinafter mentioned

and satisfies the Examining Board that prior to performing such service he either had at least three months practical experience in mining underground as the Examining Board may approve or was a bona fide mining student whose study, training or practical experience was interrupted by the performance of such service, have effect subject to the following modifications, that is to say :—

(1) Provided that such applicant has had at least three months National Service :—

(a) the periods in rule 2 (a) of 5 years and 3 years respectively shall be reduced by a period equivalent to the actual period of National Service performed by that applicant or by a period of $2\frac{1}{2}$ years and $1\frac{1}{2}$ years respectively, whichever be the less ; and

(b) in proviso (i) to that sub-head, the words "one and a half years" shall be substituted for the words "two years" and the words "one year" shall be substituted for the words "one year and six calendar months" ; and

(c) in proviso (ii) to that sub-head, the words "for such period as the Examining Board may determine" shall be substituted for the words "for a period not exceeding six months" and

(d) in rule 7 (a) the words "an oral examination held within three years of the date on which he qualified in the written examination" shall be substituted for the words "an oral examination held in conjunction therewith" ; and

(e) in rule 7 (d) the words "held in conjunction therewith" shall be deleted and the words and figures "an oral examination held within three years of the date of the written examination at which he qualified by obtaining at least 60 per cent. of the maximum marks for the whole of the written examination" shall be substituted for the words "the next succeeding oral examination".

(2) Provided that such applicant has had at least twelve months' National Service :—

(a) an applicant for either a First-Class or a Second-Class Certificate may, instead of taking collectively at one written examination all the six subjects specified in rules 4 and 5, take a group or groups of subjects at any such examination ; so however that he shall not be deemed to have qualified at the written examination unless and until he qualifies in all the six subjects specified as aforesaid within a period covered by four consecutive written examinations ;

(b) an applicant who does not take collectively at one written examination all the six subjects specified in rules 4 and 5 :—

- (i) shall be deemed to have qualified in a subject if he obtains at least 40 per cent. of the maximum marks for that subject and to have qualified in a group of subjects if he obtains at least 57.5 per cent. of the aggregate maximum marks for all the subjects of that group of subjects ;
- (ii) who fails to obtain at least 40 per cent. of the maximum marks for any subject but who obtains at least 57.5 per cent. of the aggregate maximum marks for the group of subjects in which that subject was included shall be eligible to be re-examined once in that subject within the period mentioned in sub-head (a) of this sub-paragraph and if he then obtains at least 40 per cent. of the maximum marks for that subject he shall be deemed to have qualified in that subject ;
- (iii) an applicant who is not deemed to have qualified in any group or groups of subjects may thereafter, if he so desires, include all or any of the subjects in that group or those groups with any subjects not in that group or those groups for the purposes of a group of subjects at any future examination within the period mentioned in sub-head (a) of this sub-paragraph ;
- (iv) the provisions of this sub-head shall only apply in the case of an applicant who sits for the first subject in the first group of subjects selected by him within a period of five years of his ceasing to perform National Service ; so however that if before sitting for such first subject he performs further National Service the period of such further service shall be excluded in computing such period of five years and if after sitting for such first subject but before he is deemed to have qualified at the written examination he performs further National Service the period of such further service shall be excluded in computing the period of five years for the purpose of eligibility to be re-examined in a subject as mentioned in (ii) of this sub-head and any examination held during the period of such further National Service shall be excluded in counting the four consecutive written examinations mentioned in sub-head (a) of this sub-paragraph provided nevertheless that if in the opinion of the Examining Board by reason of exceptional need or hardship arising on account of the performance of such further National Service the

said period of five years should be extended or the said number of consecutive examinations increased the Examining Board may extend such period or increase such number of examinations as they think fit but so that such extension shall not exceed five years nor such increase four consecutive examinations, as the case may be, after the applicant has ceased to perform such further National Service;

(c) for the purposes of sub-heads (a) and (b) of this sub-paragraph, the expression "group of subjects" means such number of subjects specified in rules 4 and 5 of the Principal Rules not being less than two or more than four, as the applicant may select.

3.—The Principal Rules shall also have effect subject to the following further modifications, that is to say :—

(1) If an applicant satisfies the Examining Board that by reason of disability arising out of National Service he is unable to execute drawings or to prepare plans, the Examining Board may, if they think fit, dispense with the production of the plan and levelling referred to in sub-head (v) of rule 4 of the Principal Rules ; and may direct that an allowance of marks shall be made to him in respect of any drawing or plan which he would have been required to execute in connexion with any question in a written examination ; provided nevertheless that the applicant must satisfy the examiners in his oral examination that he possesses the knowledge necessary to comprehend and to make any drawing or plan or levelling which he would otherwise have been required to make.

(2) If an applicant satisfies the Examining Board that by reason of disability arising out of National Service he is unable to write or can only write with difficulty, the Examining Board may substitute an oral examination for the whole or any part of the written examination, provided nevertheless that the standard of the written examination is not thereby lowered.

4.—In these Rules the expression "the Principal Rules" means the Mining Examinations (Certificates of Competency) Rules, 1933.

Practical Experience Required by Applicants for Certificates of Competency : Notes Issued by the Mining Qualifications Board.

(*Note.—These Notes are subject to amendment from time to time as occasion demands. Separate copies can be obtained by interested persons from the Secretary to the Board.*)

1. Applicants for First or Second-Class Certificates must normally have had not less than five years' practical experience in mining. No. 2 of the General Rules (page 159) should be studied carefully. For

candidates with at least three months' National Service the Rule is modified by the National Service Rules (page 166).

2. The Board is responsible for determining what, if any, reduction can be allowed in the required five years' practical experience ; but for the guidance of candidates examples of the kind of experience which the Board would be prepared to consider in deciding what reduction could be allowed in the case of a particular candidate having regard to the extent and variety of his experience are given below :—

(a) The period of five years' practical experience referred to in Rule 2 (1) will be reduced to 3 years for a candidate holding an approved Degree or Diploma.

(b) The period of 2 years' experience referred to in Rule 2 (2)

(a) will be reduced to one year and six calendar months for a candidate holding an approved Degree or Diploma.

(c) Practical experience under the National Coal Board's scheme of Directed Practical Training will be accepted for the purposes of Rule 2 (1) and Rule 2 (2).

The approved Degrees and Diplomas are listed at the end of these Notes.

(d) Practical experience for a period of not exceeding six months obtained in engineering workshops either underground or on the surface which are definitely associated with mining machinery may, at the discretion of the Board, be accepted as part of the five years' practical experience referred to in Rule 2 (1), but not as part of the experience required in Rule 2 (2) (a), nor as part of the reduced period required of persons holding approved Degrees or Diplomas.

(e) The Board will be prepared to take into consideration for the purposes of Rule 2 (1)

(i) Experience in metalliferous mines, whether in the United Kingdom or Overseas.

(ii) Experience of any kind of mining or tunnelling work below ground which may appear to be relevant.

3. Applicants are recommended to obtain a varied experience in mining, but in order to comply with Rule 2 (2) (a) they *must* obtain the prescribed experience either wholly in the getting of minerals or work directly connected therewith at the face, or partly in this way and partly in stonework, in timbering and in repairing.

4. For the purposes of Rule 2 (2) (a) :—

(a) The following duties rank as experience of getting minerals or of work directly connected therewith at the face :—

(i) Coal Hewer or other Face Worker ; work on coal cutting or conveyor faces.

(ii) Stallman or Contractor.

- (iii) Shot-firer (if duly qualified to act as such).
- (iv) Deputy (if complying with Section 15 (1) of the Coal Mines Act, 1911).
- (v) Overman or other underground official superior to the deputy.

(b) Experience in the following three categories may be obtained either at the working face or elsewhere in a mine :—

- (i) Stonework includes the driving of roads in stone, ripping or brushing, and taking down "top" or taking up "bottom".
- (ii) Timbering includes the setting of supports to the roof and sides of faces and roadways, and the withdrawal of supports from the goaf, waste or gob or from disused roadways.
- (iii) Repairing includes the work necessary to keep the roads and working places in a safe and workable condition.

(c) A specific minimum period to be spent in each class of work has not been imposed, because the precise character of the whole of an applicant's practical experience in mining is taken into consideration by the Board at the appropriate time. It may be assumed, however, that in no circumstances would less than six months' practical experience involving full shifts at the face, either in getting minerals or in work directly connected with such getting, be acceptable to the Board, and that the recognition of such a limited period would depend upon the character and period of the remainder of the mining duties performed.

(d) The term "responsible control" used in Rule 2 (2) (a) does not necessarily imply control in a statutory post, but it must be real responsibility involving the actual control and direction of the work prescribed. Thus, an applicant who conveys instructions from a superior official for certain work to be carried out, would not be regarded as having exercised responsible control unless he actually gives the directions for the work and is personally responsible for its adequate completion. Statements respecting mining experience obtained in indefinite positions such as "assistant manager" or "assistant overman" should be supported by explanations of the precise duties performed and of the degree of responsibility exercised. The position held by the applicant under the Coal Mines Act, 1911 (or under the General Regulations), should also be stated by the applicant (in Form 9) and by his manager (in Form 11).

5. The following kinds of experience will be acceptable, to an amount determinable by the Board, partly for the purposes of Rule 2 (1) and partly for the purposes of Rule 2 (2) (a) :—

(a) Full-time employment in the application of water infusion or other dust suppression methods in and about the working face ; but in no case will more than 6 months of such experience count for the purposes of Rule 2 (2) (a). (For Dust Sampling, *see* para. 6 (h) below.)

(b) Full-time employment in the taking of samples of mine air at or near the working face ; but in no case will more than 3 months of such experience count for the purposes of Rule 2 (2) (a).

6. Time spent in the following mining duties will be acceptable for the purposes of Rule 2 (1) but *not* for the purposes of Rule 2 (2) (a) ; as stated in paragraph 3, applicants are recommended to obtain a varied experience.

(a) Travelling the pit in the company of an official.

(b) Haulage worker.

(c) Surveyor, Assistant or Surveyor Linesman.

(d) Bratticeman.

(e) Sinker.

(f) Onsetter.

(g) Measuring ventilation and examining airways.

(h) Taking samples of road dust and of mine air in main airways.

(i) Examining and reporting on compressed air mains or electrical distribution system.

(j) Other forms of work performed under ground at the discretion of the Board.

7. Applicants should note (a) that experience in "other parts of the underground workings", as well as at the face, is prescribed by the Rules, and (b) that evidence of underground mining duties which have not been specified in Paragraphs 4, 5 and 6 above will not be excluded from consideration by the Board at the appropriate time. A decision as to an applicant's eligibility is only given after receipt of a formal application to attend a particular examination.

8. **The Board will not take into account any experience expected to be obtained after the closing date for the receipt of applications.**

9. When submitting a formal application, particulars of the whole of an applicant's practical mining experience should be specified, in chronological order (in Form 9), which should be accompanied by the manager's verification (in Form 11). *Experience will not be considered by the Board unless it is properly certified.* Special forms provided by the National Coal Board for Directed Practical Training Candidates will be accepted either in lieu of or in addition to Form 9.

10. An applicant who claims mining experience obtained in mines abroad should insert particulars in Form 9, and should forward original testimonials giving details of such experience.

11. Candidates who hold approved Degrees or Diplomas are not admissible for examination if a period of five years (covering three

years' satisfactory underground experience plus two years' allowance for the University or College Course) has not been completed. Subject thereto, underground mining experience obtained during vacations will be recognized if, in the opinion of the Board, it complies with the Rules.

12. Candidates who attended Examinations for First-Class or Second-Class Certificates of Competency held by the Board before the 1st March, 1934, are deemed to have satisfied the requirements of Rule 2 as regards mining experience.

List of Approved Degrees and Diplomas.

Name of Institution.	Description of Degree, Diploma, Etc.
Birmingham University	Degree of B.Sc. in Mining.
Durham University.	Degree of B.Sc. in Mining.
Edinburgh, Heriot-Watt College	Honours Degree of B.Sc. in Mining Engineering.
Edinburgh University	Diploma in Mining Engineering.
Glasgow University	Degree of B.Sc. in Mining.
Glasgow, Royal Technical College	Degree of B.Sc. in Mining Engineering.
Indian School of Mines, Dhanbad	Certificate of Proficiency in Mining.
Leeds University	Diploma in Mining Engineering.
London University	Associateship in Mining Engineering.
Manchester University	Degree of B.Sc. in Mining.
Newcastle-upon-Tyne, King's College	Honours Degree of B.Sc. in Mining.
Nottingham University	Degree of M.Sc. (Mining) for Students who have already graduated in Engineering.
Oxford University and Birmingham University	Diploma in Mining.
Royal School of Mines, London	Degree of B.Sc. in Mining for Internal Students.
Sheffield University	Degree of B.Sc. in Engineering (Mining) for External Students.
University College of South Wales and Monmouthshire and the South Wales and Monmouthshire School of Mines	Degree of B.Sc. in Mining.
Wales, University of	Certificate in Mining of University of Nottingham.
Wigan and District Mining and Technical College	Diploma in Coal Mining granted jointly.
	Associateship in Mining.
	Diploma in Mining.
	Degree of Bachelor of Engineering (Mining).
	Diploma in Mining granted jointly.
	Degree of B.Sc. in Mining Engineering.
	Diploma in Mining.

Fees for Examinations and Copies of Certificates.

		First Class	Second Class
(i) For examination ...	...	£5	£2. 10s.
(ii) For re-examination in one or more subjects ...	...	£1. 10s.	15s.
(iii) Copy of Certificate of Competency ...		7s. 6d.	7s. 6d.

C. SURVEYORS' CERTIFICATES.

Coal Mines (Prescription of Qualifications of Surveyors) Order, 1942, No. 1509.

(As amended by the Coal Mines (Mining Qualifications Board) General Regulations, 1950, No. 77.)

1.—A surveyor shall not be deemed to possess the prescribed qualifications for the statutory purposes unless he is the holder of a surveyor's certificate granted under the provisions of this Order.

2.—An applicant, to qualify for a surveyor's certificate, must satisfy the Mining Qualifications Board (hereinafter referred to as "the Examining Board") :—

- (a) that he is at least twenty-one years of age;
- (b) of his sobriety and general good conduct; and
- (c) that he has had such practical experience as the Examining Board may approve in surveying mines for not less than :—
 - (i) two years in the case of an applicant who has received an approved diploma or taken an approved degree or received an approved certificate;*
 - (ii) four years in any other case.

3.—An applicant, to qualify for a surveyor's certificate, must also satisfy the Examining Board at an examination that he is competent—

- (a) to make an accurate survey of the workings of a mine and to connect such survey with a surface survey;
- (b) to make accurate levellings; and
- (c) to plot accurately surveys and levellings.

4.—Notwithstanding anything contained in paragraph 3 of this Order, the Examining Board may, if they think fit, exempt from the whole or any part of an examination any applicant holding a mine surveyor's certificate granted by the Government of any other country; and any applicant so exempted shall be deemed to have satisfied the Examining Board at an examination that he is competent to do the things covered by the whole or that part of the examination (as the case may be) from which he is so exempted.

5.—In the case of an applicant who has performed National Service for a period of at least three months and who satisfies the Examining Board that prior to performing such service he either had at least three months' practical mine surveying experience as the Examining Board may approve or that he was a bona fide mine surveying student whose study, training or practical experience was interrupted by the

* See lists on page 179.

performance of such service, the provisions of paragraph 2 of this Order shall have effect subject to the following modification, that is to say:—

the periods of two years and four years respectively specified in sub-head (c) thereof shall be reduced by a period equivalent to the actual period of National Service performed by that applicant or by a period of one year and two years respectively, whichever be the less.

6.—Every applicant for a surveyor's certificate who has satisfied (or is deemed to have satisfied) the Examining Board on all the matters specified in the foregoing provisions of this Order shall be reported by the Examining Board to the Minister as having qualified for such a certificate.

7.—The Minister may, if he thinks fit, grant a surveyor's certificate to every applicant who is reported to him by the Examining Board in pursuance of the provisions contained in paragraph 6 of this Order as having qualified for such a certificate; so however that a surveyor's certificate will not be granted to any applicant so reported who has not by reason of the provisions of paragraph 5 of this Order had two or four years' practical experience in surveying mines (as the case may be) until he shall have had such experience for two or four years (as the case may be).

8.—The Minister may, if he thinks fit, vary in any surveyor's certificate the name of the person to whom it was granted on proof to the satisfaction of the Minister that the name is incorrectly stated therein or that such person has changed his name or is known by a name different from that mentioned in the certificate.

9.—(1) If at any time it appears to the Minister on the representations of an inspector or otherwise that any person holding a surveyor's certificate is by reason of incompetency or gross negligence or misconduct in relation to the performance of any of the statutory purposes unfit to continue to hold a surveyor's certificate or has been convicted of an offence in relation to the performance of any of the statutory purposes, the Minister may, if he thinks fit, cause an investigation to be made into the conduct of that person.

(2) Any such investigation shall be held in public by such person (in this paragraph referred to as "the Commissioner"), at such time and in such manner as the Minister may direct and either alone or with the assistance of any assessor or assessors appointed by the Minister.

(3) The Minister shall before the commencement of an investigation furnish to the person into whose conduct the investigation is to be held a statement of the case alleged against him.

(4) An inspector and any person who has made representations as aforesaid and the person into whose conduct an investigation is being made may attend the investigation by himself, his counsel, solicitor or agent and may, if he so desires, give evidence thereat.

(5) The Commissioner shall, on the conclusion of the investigation, send to the Minister a report containing a full statement of the case and his opinion thereon and such report of, or extracts from, the evidence as he thinks fit.

(6) The Minister may require the person into whose conduct an investigation is to be held to deliver up his surveyor's certificate to be held by the Minister until the conclusion of the investigation.

If as a result of the investigation such certificate is neither cancelled nor suspended by the Minister, it shall be restored to the person in whose favour it was granted.

(7) The Minister may cancel or suspend for such period as he thinks fit the surveyor's certificate held by a person whose conduct has been investigated if the Minister is of opinion that by reason of such incompetency or of such gross negligence or misconduct as aforesaid or of having been convicted of such an offence as aforesaid such person is unfit to continue to hold a surveyor's certificate.

(8) The holder of a surveyor's certificate which has been cancelled or suspended and which has not been delivered up as aforesaid shall forthwith deliver up such certificate to the Minister or as he directs.

(9) A surveyor's certificate which has been suspended shall be held by the Minister until the period for which the same was suspended has expired or been determined as hereinafter provided; whereupon the Minister shall restore it to the person in whose favour it was granted.

(10) The Minister may, if at any time he is of opinion it is just so to do, renew a surveyor's certificate which has been cancelled or determine any period for which it has been suspended; whereupon the Minister shall restore it to the person in whose favour it was granted.

10.—(1) In this Order, unless the context otherwise requires, the following expressions have the meanings hereby respectively assigned to them, that is to say:—

“Approved diploma” means a diploma (approved by the Minister) involving scientific and mining training awarded by a University or by an Institution.

“Approved degree” means a degree (approved by the Minister) involving scientific and mining training awarded by a University.

“Approved certificate” means a certificate awarded by a University or by an Institution after a course of study, approved by the Minister, in mine surveying.

“Statutory purposes” means the purposes of sections 20 and 21 of the Coal Mines Act, 1911.

“National Service” means whole-time service performed in any one or more of the following cases, that is to say:—

(1) as a militiaman in pursuance of the provisions of the Military Training Act, 1939 (2 & 3 Geo. 6. c. 25);

(2) as a member of His Majesty's regular forces or of His Majesty's reserve and auxiliary forces during the period of six months immediately prior to the 3rd day of September, 1939 ;

(3) either wholly during or partly during and partly after the conclusion of any war in which His Majesty has been, is or may be engaged after the 2nd day of September, 1939 :—

(a) in any of the armed forces of the Crown ; or

(b) in civil defence duties ; or

(c) in any duties which in the opinion of the Examining Board were essential duties and which in their opinion it was expedient in the national interests for the applicant to perform ;

whether wholly performed in any one of such forces or duties or partly in one and partly in another ; and

“ His Majesty's regular forces ” and “ His Majesty's reserve and auxiliary forces ” have the meanings respectively assigned to them by the Military Training Act, 1939 ; and

“ Civil Defence duties ” means duties the performance of which a local authority is or was required or authorized to organize in the discharge of functions conferred or imposed on it by the Air-Raid Precautions Act, 1937 (1 & 2 Geo. 6. c. 6), or the Civil Defence Act, 1939 (2 & 3 Geo. 6. c. 31), or Part II of the Defence (General) Regulations, 1939, or any functions relating to the extinction of fires whether exercisable under those Acts or that Part of those Regulations or otherwise ; and

“ essential duties ” means duties essential for the defence of the realm or the prosecution of the war or essential to the life of the community.

(2) Any approval for the purposes of this Order by the Minister may be subject to such conditions as he thinks fit, and he may revoke or vary any approval.

Syllabus and Qualifying Standards for Surveyors' Certificates. Notes Issued by the Mining Qualifications Board.

(Note.—These Notes are subject to amendment from time to time as occasions demands. Separate copies can be obtained by interested persons from the Secretary to the Board.)

WRITTEN EXAMINATION.

Syllabus.

1. Surveying, Levelling and Drawing : Determination of magnetic declination, loose and fast needle dialling, calculation of areas and volumes, contour lines and levelling, traversing with the theodolite under ground and on surface, connecting of surface and underground

surveys, triangulations, mine plans, and sections. Ordnance Survey maps and Geological maps, the use, care and testing of instruments.

2. Applicants must satisfy the Examining Board that they are competent—

- (1) to make an accurate survey of the workings of a mine and to connect such survey with a surface survey ;
- (2) to make accurate levellings ; and
- (3) to plot accurately surveys and levellings.

The maximum marks are 100.

Qualifying marks for entry to Oral and Practical Examinations.

3. At least 60 out of 100 marks will qualify for entry to the oral and practical examination.

THE ORAL AND PRACTICAL EXAMINATION.

4. This examination which takes place on three successive days will comprise—

- (1) Surface Tests (including use and adjustments of theodolite and sectional levelling) ;
- (2) Underground Tests (including use of theodolite) ; and
- (3) Oral and Office Tests (including preparation of a plan).

5. Applicants are advised of the vital importance of adequate practice in the use of the theodolite. Evidence of insufficient experience in the manipulation of Surveying Instruments militates against an applicant's prospects of passing the practical tests.

6. The use of Chambers' Mathematical Tables, Bremiker's Tables of the Common Logarithms, Shortrede's Table of Logarithms, Sines and Tangents, and Slide Rules will be permitted at both the written and oral and practical examinations subject to such restrictions as may be determined by the Board or by the examiner presiding over the examinations.

7. The Total Marks in the Oral and Practical Examination will be as follows :—

Surface Tests	...	...	...	25	marks
Underground Tests	...	...	...	35	"
Office Work	...	...	...	20	"
Oral Tests	...	...	...	20	"
				<hr/>	
Total				100	marks.

No applicant will qualify for a Certificate unless he obtains at least half marks in each of the above four tests and at least 60 of the total marks.

QUALIFYING STANDARD AT COMBINED EXAMINATION.

8. An applicant who obtains at least 65 marks in the written examination and also at least 50 in the oral and practical, will, however, be eligible for re-examination at the next succeeding Oral and Practical Examination without undergoing a further written examination.

Otherwise an applicant who qualifies in the written examination but fails to qualify in the subsequent Oral and Practical Examination will be required to pass a further written examination before he can be admitted to a further oral and practical examination.

List of Approved Degrees and Diplomas and Approved Courses of Study in Mine Surveying.

(Clause 2 (c) (1) of the Coal Mines (Prescription of Qualifications of Surveyors) Order, 1942.)

(a) APPROVED DEGREES AND DIPLOMAS.

The Degrees and Diplomas approved in respect of applicants for Certificates of Competency are also approved in respect of applicants for Surveyors' Certificates—see list on page 173.

(b) UNIVERSITIES AND INSTITUTIONS WHOSE COURSES OF STUDY IN MINE SURVEYING HAVE BEEN APPROVED.

Cardiff, University College of South Wales and Monmouthshire.

Edinburgh, Heriot-Watt College (two Courses).

Glasgow, Royal Technical College (two Courses).

Glasgow University.

Leeds University.

London, Royal School of Mines.

Sheffield University (Courses "A" and "B").

Treforest and Crumlin, South Wales and Monmouthshire School of Mines.

Wigan and District Mining and Technical College (two Courses).

Fees for Examinations and Copies of Certificates.

(i) For whole examination	£4
(ii) For oral and practical re-examination	£3
(iii) Copy of Certificate	7s. 6d.

D. DEPUTIES' CERTIFICATES.

Explanatory Note.

The Coal Mines (Officials and Inspections) General Regulations 1951, amend Section 15 of the Coal Mines Act, 1911 (see page 8), and the amended provisions will come into operation on 1st June, 1952. From that date, subject to certain exceptions, no person will be

qualified to be appointed as a deputy *for the first time* unless he (a) is the holder of a Certificate of Competency or a Deputy's Certificate, and (b) has within the previous five years obtained a Gas-Testing and Hearing Certificate and a First-Aid Certificate. The details of the amended provisions are explained more fully in the Memorandum on the Coal Mines (Officials and Inspections) General Regulations.*

Rules governing the new Certificates will be made by the Mining Qualifications Board, and will be included in the next edition of this volume. The first examinations under the new system will probably be held in March of 1952, and persons desiring further information about them should apply to any Local Education Authority or Technical College in a mining area.

The present system of examinations will be continued until 1st June, 1952, and any person wishing to qualify by this means should apply to any Local Education Authority, Technical College, University, or University College in a mining area.

* H.M. Stationery Office, price 1s. 0d. net.

PART FOUR.

Lists corrected to 1st June, 1951, of approvals granted in pursuance of the Coal Mines Act, 1911, and the Regulations and Orders made under the Act, and of certain Types of Certified Apparatus.

DUST SUPPRESSION.

A. CERTIFIED DRILLS.

LIST OF MECHANICAL DRILLING APPLIANCES TESTED AND PROVISIONALLY CERTIFIED AS COMPLYING WITH THE REQUIREMENTS AS TO DUST SUPPRESSION SPECIFIED IN M.F.P. TESTING MEMORANDUM NO. 9.

Submitted by	Name of Rock Drill
1. Climax Rock Drill and Engineering Works Ltd., Carn Brea, near Redruth, Cornwall.	F.2 Jackhammer Drill. Climax RV.238 (Wet) Jackhammer (Ventilated type). Climax RV.240 (Wet) Jackhammer (Ventilated type).
2. Consolidated Pneumatic Tool Co. Ltd., 232 Dawes Road, London, S.W.6.	C.P.122 Rock Drill, Wet. C.P.220 do. C.P.42 do.
3. Hardypick Ltd., Sheffield, 8.	B.6 Dry Drill. Fitted with Hardy W.A.3 Wet Attachment. B.6.W. Axially Water-fed Drill. B.6.B. Dry Drill. Fitted with Hardy W.A.3 Wet Attachment. B.6.B.W. Axially Water-fed Drill. Hardy's 60-pdr. W. Axially Water-fed Drill.
4. Holman Bros. Ltd., Camborne, Cornwall.	S.L.9B Handril. S.L.240 Drifter Drill. S.L.10A Handril. S.L.200 Water-fed Rock Drill. S.L.250 Drifter Drill. Holman Silver Dart Drill. Holman Silver Bullet Handril. S.L.280 Drifter Drill. D.A.35 Rock Drill.
5. Ingersoll-Rand Co. Ltd., 165 Queen Victoria Street, London, E.C.4.	

B. APPROVED DUST TRAPS AND DUST ALLAYING DEVICES.

LIST OF TYPES OF TRAPS AND OTHER DEVICES APPROVED BY H.M. CHIEF INSPECTOR OF MINES FOR USE IN DUST SUPPRESSION.

Submitted by	Name of Appliance
Bell & Smart Ltd., Engineers, Tottenham Street, London, W.1.	<i>Trewill Dust Trap.*</i> Hay Dust Trap (Improved Design).
Pyrene Co. Ltd., Great West Road, Brentford, Middlesex.	Pyrene Foam Dust-allaying Apparatus.
Do.	Pyrene Dust Trap. Large Model.
Do.	Pyrene Dust Trap. Small Model.
Charles Crofton & Co. (Engineers) Ltd., Church Bank Offices, Wallsend-on-Tyne.	"Victor" (or "Huwood") Electric Rotary Stone Drilling Machine—used with bits of eccentric type tipped with "Ardaloy" steel.
Do.	Ingersoll-Victor Compressed Air-driven Rotary Stone Drilling Machine—used with bits of eccentric type tipped with "Ardaloy" steel.

* No longer manufactured.

Submitted by	Name of Appliance
Tom Smith & Clarke Ltd., Castle Buildings, Swansea.	Collier Dust Trap (Modified Design).
Compressed Air Ltd., West Wharf Road, Cardiff.	Sgonina Mark VII Dust Trap.
Do.	Sgonina Mark V Dust Trap.*
Do.	Sgonina Mark VI Dust Trap.*
Partridge, Jones & John Paton, Ltd., Six Bells, Abertillery, Monmouthshire.	N.A. Dust Trap (Modified Design).

* Approved for use only in slate mines.

ELECTRICAL APPARATUS.

A. REMOTE CONTROL CIRCUITS.

LIST OF REMOTE CONTROL CIRCUITS CERTIFIED AS INTRINSICALLY SAFE.

Submitted by	Name of Apparatus	Certificate No.
1. Anderson, Boyes & Co. Ltd., Motherwell.	Remote Control Circuit Type C.H.402.	T/RC/16
	Remote Control Circuits Types C.S.1 and C.S.2.	T/RC/34
	Remote Control Circuit Type C.S.3.	T/RC/47
	Type EL.1 Electrical Lockout Circuit.	T/RC/48
2. Baldwin & Francis Ltd., Eyre Street, Sheffield.	Remote Control and Interlock Circuits (Schemes A and B).	T/RC/14
	Type E.M.3 Electrical Lockout Circuit.	T/RC/46
	Remote Control Circuit Type E.M.3.	T/RC/41
	Remote Control or Interlock Circuit.	T/RC/11
	Remote Control Circuit.	T/RC/2A
3. Belmos Co. Ltd., Bells-hill, Lanarkshire.	Electrical Interlocking Circuit.	T/RC/9
4. British Thomson-Houston Co. Ltd., Rugby.	Remote Control Circuit.	T/RC/6
5. James Dawkins & Co. Ltd., Kirkcaldy, Fife.	Remote Control Circuit of the G.E.C. Gate-End Box, Type FMU2.	T/RC/38
6. General Electric Co. Ltd., Birmingham.	Remote Control Circuits.	
7. Hardypick Ltd., Sheffield.	Drill Control Circuit Type R.C.3.	T/RC/4/1, T/RC/4/2, T/RC/4/3 and T/RC/4/4
	Operating Circuit of the Wigan "Electro-Mercury" Switch, Cat. No. 783.	T/RC/32
8. Heyes & Co. Ltd., Wigan.	Operating Circuit of the Wigan "Electro-Mercury" Switch, Cat. No. 783.	T/BR/129
9. M. & C. Switchgear Ltd., Glasgow.	Remote Control Circuit.	T/RC/7
	Remote Control Circuits Types A.238E1 and A.256C1.	T/RC/12
	Remote Control Circuit of the Type No. 1 Gate-End Box.	T/RC/40
10. Metropolitan-Vickers Electrical Co., Ltd. Manchester.	Remote Control Circuits.	{ T/RC/1, T/RC/2 and T/RC/2/1
	Remote Control Circuits Types ISC/1 and ISC/2.	T/RC/2/2
	Type ISC/Remote Control Circuit.	T/RC/43
11. Partridge Wilson & Co. Ltd., Leicester.	Remote Control Circuit of the D.C. Injection Rectifier Type S.R.1.	T/RC/39

Submitted by	Name of Apparatus	Certificate No.
12. A. Reyrolle & Co. Ltd., Hebburn-on-Tyne.	Remote Control Circuit Type 1A. Type 4A Electrical Interlock Circuit. Remote Control Circuits Types 5 and 8. Remote Control Circuit Type 5A. Remote Control Circuit Type 9. Remote Control Circuit Type 11. Remote Control Circuit Type 12. Remote Control Circuit Type 13A Remote Control Circuits Types 10A, 15 and 16. Remote Control Circuit.	T/RC/10/2 T/RC/10/3 T/RC/10/7 and T/RC/10/4 T/RC/10/7 T/RC/10/8 T/RC/10/9B. T/RC/17 T/RC/19 T/RC/19
13. Siemens-Schuckert (Great Britain) Ltd., Brentford.		T/RC/5
14. Switchgear & Cowans Ltd., Old Trafford, Manchester.	Remote Control Circuit Type M.R.C.T.	T/RC/24
15. Victor Products (Wallsend) Ltd., Wallsend-on-Tyne.	Remote Control Circuits.	T/RC/15
16. Wallacetown Engineering Co. Ltd., Ayr.	Remote Control Circuit Type D46. Remote Control Circuit No. I.S.1038.	T/RC/33 T/RC/45
17. Allen West & Co. Ltd., Brighton 7.	Remote Control Circuit Type I.S.F.	T/RC/31
18. Hugh Wood & Co. Ltd., Gateshead-on-Tyne 11.	Remote Control Circuit Type RC/1.	T/RC/18

B. TELEPHONES AND SIGNALLING APPARATUS.

LIST OF APPROVED TYPES OF INTRINSICALLY SAFE SIGNALLING APPARATUS AND TELEPHONES

I.—D.C. SIGNALLING APPARATUS.

Submitted by	Name of Apparatus	Certificate No.
1. John Davis & Son (Derby) Ltd., Derby.	(a) Bells. Davis-Derby Divisafest Bell (with or without indicator lamp).	T/BR/57
2. Ericsson Telephones Ltd., Nottingham.	Ericsson Types N.3030 (20 ohms) and N.3030A (30 ohms).	T/BR/63
3. General Electric Co. Ltd., London, W.C.2.	Magnet (or G.E.C.) Subter Bell (with or without L.4235 visual lamp indicator) Types L.4231 or L.4232.	T/BR/68
	Magnet (or G.E.C.) Mine Bell, Types L.4225 and L.4226.	T/BR/62
	Magnet (or G.E.C.) Mine Bell, Type 2.	T/BR/75
4. Gent & Co. Ltd., Leicester.	Tangent Fig. 1084 Bell (25 or 10 ohms).	T/BR/56A
5. Heyes & Co. Ltd., Wigan.	Handco Bell. Heyesco Bell (30 or 60 ohms).	T/BR/59 T/BR/58

Submitted by	Name of Apparatus	Certificate No.
	<i>(b) Relays.</i> A.T.M. 3,000 Relay.	T/BR/105
1. Automatic Telephone & Electric Co. Ltd., Liverpool. 2. John Davis & Son (Derby) Ltd., Derby. 3. Electric Power Plant Co., Nottingham. 4. Ericsson Telephones Ltd., Nottingham. 5. General Electric Co., Ltd., London, W.C.2. 6. Gent & Co. Ltd., Leicester. 7. Heyes & Co. Ltd., Wigan.	Davisafe Relay (50, 100, 250 or 500 ohms). Safe-Sign Visual Signal. Ericsson D.C. Mining Relay, Type N.7240. Magnet (or G.E.C.) Cascade Relay. Magnet (or G.E.C.) Safety Relay. Tangent Fig. 1429 Relay. Handco Relay (100, 250 or 500 ohms).	T/BR/65 T/BR/71 T/BR/55 T/BR/67 T/BR/61 T/BR/56B T/BR/54B
1. John Davis & Son (Derby) Ltd., Derby. 2. Gent & Co. Ltd., Leicester. 3. Heyes & Co. Ltd., Wigan.	<i>(c) Relay Bells.</i> Davis-Derby Bell-Relay (with or without indicator lamp). Tangent Fig. 1083 Relay-Bell. Handco Relay-Bell (Relay 100, 250 or 500 ohms; Bell, 25 ohms).	T/BR/66 T/BR/56 T/BR/76
1. Automatic Telephone & Electric Co. Ltd., Liverpool. 2. General Electric Co. Ltd., London, W.C.2. 3. Heyes & Co. Ltd., Wigan.	<i>(d) Signalling Systems.</i> A.T.M. Ten Point Haulage Indicator Type 43-P. A.T.M. Conductor to Driver Signalling System Type 48. Automatic Control System, for endless rope haulage. G.E.C. Positional Indicator, for rope haulage. Wigan Haulage Signalling Indicator.	T/BR/117 T/BR/135 T/BR/96 T/BR/107 T/BR/134
1. General Electric Co. Ltd., London, W.C.2. 2. India Rubber, Gutta Percha & Telegraph Works Co. Ltd., London, E.16.	<i>(e) Sources of Current.</i> Magnet (or G.E.C.) 24-volt Dry Battery Unit. Silvertown Safety Battery.	T/BR/73 T/BR/148

Note.—Certificates issued prior to 1st May, 1933, are superseded by certificates of later date for corresponding types, and have been withdrawn, though they remain in force for apparatus already in use under the standard conditions.

II.—A.C. SIGNALLING APPARATUS.

Submitted by	Name of Apparatus	Certincate No.
	<i>(a) Bells.</i>	
1. John Davis & Son (Derby) Ltd., Derby.	Davisolac Mining Bell.	T/BR/115
2. Ericsson Telephones Ltd., Nottingham.	N.3109H Mining Bell.	T/BR/89
3. General Electric Co. Ltd., London, W.C.2.	N.3111C Mining Bell.	T/BR/128
4. Gent & Co. Ltd., Leicester.	L.4219 Mining Bell.	T/BR/87
5. Heyes & Co. Ltd., Wigan.	Tangent Fig. 1094 Mining Bell.	T/BR/88
	<i>(b) Relays.</i>	
1. John Davis & Son (Derby) Ltd., Derby.	Davis-Derby A.C. Davisafe Relay.	T/BR/104
2. General Electric Co. Ltd., London, W.C.2.	L.4223 Mining Relay.	T/BR/98
3. Gent & Co. Ltd., Leicester.	Tangent 1429B, A.C. Mining Relay.	T/BR/102
4. Heyes & Co. Ltd., Wigan.	Wigan A.C. Relay 893.	T/BR/108
	<i>(c) Signalling Systems.</i>	
1. Automatic Telephone & Electric Co. Ltd., Liverpool.	A.T.M. Type 46 Staple Shaft Signalling System.	T/BR/124
	A.T.M. Type 48 Rope Driven Man Haulage Signal System.	T/BR/133
	Positional Haulage Signalling System.	T/BR/150
2. Westinghouse Brake & Signal Co. Ltd., London, N.1.	Westinghouse Mine Traffic Control Circuits.	T/BR/147
	<i>(d) Sources of Current.</i>	
1. Automatic Telephone & Electric Co. Ltd., Liverpool.	A.T.M. A.C. Signalling Transformer Unit, T.2553.	{ T/BR/97A T/BR/100B
2. Belmos Co. Ltd., Bellshill, Lanarkshire.	Type ST Mine Signalling Transformer for primary voltage ranges of 110, 230, 440, 500, 550 and 625.	T/BR/127
3. John Davis & Son (Derby) Ltd., Derby.	Type MB Signalling Transformer for primary voltage ranges of 110, 130, 200, 230, 250, 440, 500, 550 and 600.	T/BR/90
4. Foster Transformers & Switchgear Ltd., London, S.W.19.	Type SFT.1 Bell Signalling Transformer (24 VA).	T/BR/140
5. General Electric Co. Ltd., London, W.C.2.	Types A, B & C Signalling Transformers for primary voltages of 400, 440, 500 and 650.	T/BR/101
6. Gent & Co. Ltd., Leicester.	X.T. 5620 Signalling Transformer for primary voltage ranges of 110/125, 200/250.	T/BR/85
	Tangent Fig. 1141 Bell Ringing Transformer for primary voltage ranges of 110/125, 200/250, 440/550 and 550/660.	T/BR/85A

Submitted by	Name of Apparatus	Certificate No.
7. Heyes & Co. Ltd., Wigan.	Wigan A.C. Transformer Unit No. 895, 50 cycles, for primary voltages of 500 or 230; 40, 50 or 60 cycles for primary voltages of 90/120, 220/250, 400/550 and 600/650. Wigan Mine Signalling Transformer No. 896 for primary voltage ranges of 90/120, 220/250, 400/550 and 600/650.	T/BR/97 T/BR/100A
8. Metropolitan-Vickers Electrical Co. Ltd., Manchester.	Type A.C.1 Mine Signalling Transformer for primary voltage ranges of 90/120, 220/250, 250/500, 400/550 and 600/650. Type AN 24VA. Bell Signalling Transformer. Type AN 24VA. Bell Signalling Transformer with primary windings designed for 600, 550, 440, 400 and 120 volts at 50 cycles, and 440 volts at 25 cycles.	T/BR/100 T/BR/138 T/BR/141
9. Wallacetown Engineering Co. Ltd., Ayr.	Types B47 and E49 Bell Signalling Transformers for primary voltages of 110, 240, 400, 450, 500, 550 and 650.	T/BR/151

III.—D.C./A.C. SIGNALLING APPARATUS.

Submitted by	Name of Apparatus	Certificate No.
1. Automatic Telephone & Electric Co. Ltd., Liverpool.	(a) <i>Bells.</i> A.T.M. Mining Bell AC/DC.	T/BR/122
2. Heyes & Co. Ltd., Wigan.	Wigan Cat. No. 899 (or Cat. No. 900) Signalling Bell (AC or DC). Wigan Cat. No. 899B (or 900B) Bell, AC/DC.	T/BR/121 T/BR/132
1. Automatic Telephone & Electric Co. Ltd., Liverpool.	(b) <i>Relays.</i> A.T.M. Ironclad AC/DC Mining Relay.	T/BR/125
2. Gent & Co. Ltd., Leicester.	Gent Mining Relay Fig. 1489.	T/BR/137
3. Heyes & Co. Ltd., Wigan.	Wigan Cat. No. 786 AC/DC Relay. Wigan Cat. No. 786A AC/DC Relay. Wigan Cat. No. 786B AC/DC Relay. Wigan Cat. No. 782 Latch Relay AC/DC.	T/BR/126 T/BR/130 T/BR/136 T/BR/131
4. Westinghouse Brake & Signal Co. Ltd., London, N.1.	Electro-Pneumatic Valve Unit Type A.	T/BR/153

IV.—MAGNETO-CALL TELEPHONE APPARATUS.

Submitted by	Name of Apparatus	Certificate No.
1. Automatic Telephone & Electric Co. Ltd., Liverpool.	(a) <i>Telephones.</i> A.T.M. T.3904, for surface use only. T.3903, Desk Type. A.T.M. 43 B.M.S. A.T.M. 39 (or 42) Ironclad Magneto Wall Telephone. A.T.M. 43 A.M.S. Sound Powered Telephone. Type A.T.M. 47 Ironclad Magneto Mining Telephone (including variant for surface use). Ericsson Types N.2982 and N.2972; N.2984 and N.2974. Ericsson Magneto Wall Telephone, N.2504. Ericsson Wall, N.2202. N.2518 (for surface use). Ericsson Table, N.2155B (for surface use). Ericsson Type 2121Z Mining Table Telephone (for surface use). Types N.2976 and N.2986 Mining Magneto Wall Telephone. Type N.2519 Mining Magneto Wall Telephone (for surface use). Magneto-Call Mining Telephone, K.8100 (including wall and desk types). K. 8099.	T/TEL/8 T/TEL/8 T/TEL/70 T/TEL/56 T/TEL/71 T/TEL/77 T/TEL/2C T/TEL/2E T/TEL/66 T/TEL/66 T/TEL/36 T/TEL/82 T/TEL/84 T/TEL/86 T/TEL/17 T/TEL/17 T/TEL/71 T/TEL/73 T/TEL/13 T/TEL/13 T/TEL/72 T/TEL/72 T/TEL/72 T/TEL/72 T/TEL/33 T/TEL/8A T/TEL/2G T/TEL/9 T/TEL/85
2. Ericsson Telephones Ltd., Nottingham.		
3. General Electric Co. Ltd., London, W.C.2.		
4. Gent & Co. Ltd., Leicester.		
5. Heyes & Co. Ltd., Wigan.		
6. Siemens Bros. & Co. Ltd., Woolwich, S.E. 18.		
7. Siemens-Schuckert (Great Britain) Ltd., London, E.C.4.		
8. Telephone Manufacturing Co. Ltd., London, S.E.27.		

Submitted by	Name of Apparatus	Certificate No.
1. Automatic Telephone & Electric Co. Ltd., Liverpool.	<i>(b) Extension Bells.</i> Type A.T.M. Mining Extension Bell. Type 42 Extension Bell. Type M46. MA1 Magneto Telephone Bell. Ericsson Mining Magneto-Telephone Extension Bell, N.3109D. Type N.2155B Telephone Bell (for surface use only). Ericsson Mining Magneto Extension Bell, Type N.3111. Magneto Extension Bell, K.8312.	T/TEL/26A T/TEL/56B T/TEL/87 T/TEL/2G T/TEL/36 T/TEL/76 T/TEL/17B
2. Ericsson Telephones Ltd., Nottingham.	Tangent Fig. 2126B, Extension Bell.	T/TEL/73
3. General Electric Co. Ltd., London, W.C.2.	Wigan Magneto Telephone Extension Bell.	T/TEL/26
4. Gent & Co. Ltd., Leicester.		
5. Heyes & Co. Ltd., Wigan.		
1. Automatic Telephone & Electric Co. Ltd., Liverpool.	<i>(c) Switchboards.</i> A.T.M. Cordless Telephone Switchboard (including wood-cased variant).	T/TEL/25
2. Ericsson Telephones Ltd., Nottingham.	Ericsson Cordless Mining Magneto Switchboards, N.510, N.515 and N.550 and 510 and 550 with lamp indicator for surface use.	T/TEL/2F
3. General Electric Co. Ltd., London, W.C.2.	Ericsson Cord Mining Magneto Switchboard, N.570.	T/TEL/2F
4. Gent & Co. Ltd., Leicester.	Ericsson Cordless Mining Magneto Telephone Switchboards Types N.555 and N.513.	T/TEL/83
5. Heyes & Co. Ltd., Wigan.	G.E.C. Mine Telephone Switchboard (12.3.34). G.E.C. Mine Telephone Switchboard (21.4.38). Tangent 2181 Telephone Switchboard (including wood-cased variant).	T/TEL/21 T/TEL/44 { T/TEL/24 and T/TEL/59
1. Automatic Telephone & Electric Co. Ltd.	Wigan Mining Type Cordless Telephone Switchboard (including wood-cased variant).	T/TEL/20
2. Ericsson Telephones Ltd., Nottingham.	<i>(d) Coupling Units.</i> A.T.M. Coupling Unit.	T/TEL/39A
3. General Electric Co. Ltd., London, W.C.2.	P.A.X. Coupling System.	T/TEL/68
4. Heyes & Co. Ltd., Wigan.	45 A.X. Coupling System.	T/TEL/68/1
5. Reliance Telephone Co. Ltd., London, W.C.2.	Type 38 A.T.M. Coupling Unit. Ericsson Telephone Coupling Unit. Genelex Telephone Coupling Unit. Wigan Telephone Coupling Unit. Wigan Coupling Unit, No. 1456 (including wood-cased variant).	T/TEL/79 T/TEL/41 T/TEL/41A T/TEL/39 T/TEL/60 T/TEL/54

V.—BATTERY-CALL TELEPHONE APPARATUS.

VI.—MAGNETO-CALL BATTERY-CALL TELEPHONE APPARATUS.

Submitted by	Name of Apparatus	Certificate No.
Gent & Co. Ltd., Leicester.	<p>(a) <i>Switchboards.</i> Tangent 2181 Telephone Switch-board (magneto-operated or battery-operated Board) (including wood-cased variant).</p>	T/TEL/65
Automatic Telephone & Electric Co. Ltd., Liverpool.	<p>(b) <i>Coupling Units.</i> A.T.M. Telephone Safety Coupler Type M.954/1 for magneto-call or battery-call telephones.</p>	T/TEL/63

VII.—PORTABLE TELEPHONES.

Submitted by	Name of Apparatus	Certificate No.
1. Ericsson Telephones Ltd., Nottingham.	Ericsson Mine Rescue Telephone (18.6.38). Mine Rescue Telephone (31.8.48) Portable Magneto Mining Telephone, Type N.1846.	T/TEL/28A T/TEL/78 T/TEL/80
2. Heyes & Co. Ltd., Wigan.	Wigan Portable Battery-Call Telephone.	T/TEL/55
3. Telephone Manufacturing Co. Ltd., London, S.E.27.	Batteryless Telephone Type L51.	T/TEL/85

VIII.—SUPPLEMENTARY APPARATUS.

Submitted by	Name of Apparatus	Certificate No.
	<i>(a) Accessories to Magneto Telephones.</i>	
1. Automatic Telephone & Electric Co. Ltd., Liverpool.	A.T.M. Party-Line Delayed Ringing Circuit. Post Office Type 3000 Relay.	T/TEL/47 T/TEL/71A
2. Ericsson Telephones Ltd., Nottingham.	Ericsson Mining Magneto-Telephone Indicator-Relay, N.8652.	T/TEL/2F
	<i>Ericsson Magneto-Telephone Relay, N.7236.</i>	
3. Gent & Co. Ltd., Leicester.	Tangent 1429A Magneto-Telephone Relay. Tangent 2134 Mining Telephone Delay Call Unit.	T/TEL/51 T/TEL/75
4. Heyes & Co. Ltd., Wigan.	Wigan Magneto Extension Relay.	T/TEL/61
	<i>(b) Accessories to Magneto-Call/Battery-Call Telephones.</i>	
1. Ericsson Telephones Ltd., Nottingham.	Ericsson Mining Code-Ringing Delay Unit.	T/TEL/48
2. General Electric Co. Ltd., London, W.C.2.	Magneto-call or Battery-call Telephone Delayed Action Relay.	T/TEL/67

C. OTHER INTRINSICALLY SAFE APPARATUS.

A. LIST OF MISCELLANEOUS ELECTRICAL APPARATUS (OTHER THAN FOR SIGNALLING PURPOSES) CERTIFIED AS INTRINSICALLY SAFE.

Submitted by	Name of Apparatus	Certificate No.
1. C. F. Casella & Co. Ltd., Fitzroy Square, London, W.1.	Thermal Precipitator.	T/MISC./101
2. Elliott Bros. (London) Ltd., London, S.E.13.	Shotter Transmission Equipment (water level indicator).	T/MISC./189
3. Evershed & Vignoles Ltd., Chiswick, London.	Evershed Electronic Repeater System. Evershed "Noflate" Pump Control Equipment.	T/BR/146 T/BR/145
4. E. Leitz (London), 20 Mortimer Street, London, W.1.	Tyndallometer.	T/MISC./145
5. Pyroban Developments Ltd., Manchester, 1.	Peco Pyroban Fire Detector.	T/BR/144

B. LIST OF TESTING INSTRUMENTS CERTIFIED AS INTRINSICALLY SAFE.

Submitted by	Name of Apparatus	Certificate No.
1. John Davis & Son (Derby) Ltd., Derby.	Circuit Testing Ohmmeter range 0-300 ohms.	T/EXP/35
2. Electronic and X-Ray Applications Ltd., 17 Pennant Mews, London, W.8.	Exal Fractional Ohmmeter.	T/TI/13
3. Evershed & Vignoles Ltd., Chiswick, London	Safety Ohmmeter Cat. Nos. 70078 and 70079 (range 0-100 ohms). Constant Pressure MEG Insulation Testers. Cat. Nos. 54006, 54007, 54008 and 54009. Constant Pressure MEG Insulation and Continuity Testers Cat. Nos. 54234, 54254, 54274 and 54294. Bridge MEG Testers Cat. Nos. 67003 and 67004. Megger Testing Sets Cat. Nos. 35008 and 35009.	T/TI/7 T/TI/8A T/TI/8B T/TI/8C T/TI/12
4. General Electric Co. Ltd., London, W.C.2.	Magnet Continuity Testing Set. M5305 Galvanometer.	T/BR/53 T/TI/3
5. Heyes & Co. Ltd., Wigan.	Earth Continuity Tester, M4146. Wigan Intrinsic Testing Instrument (for D.C. bells and relays)	T/TI/16 T/BR/82

PERMITTED EXPLOSIVES AND BLASTING APPLIANCES.

A. LIST OF THE EXPLOSIVES PERMITTED UNDER CLAUSE 11 OF THE EXPLOSIVES IN COAL MINES ORDER, 1934.

*Notes : (Parts 1 and 2 only).—The Explosives marked (S) are permitted either with or without an external sheath, and may be supplied and used in either state. In the former state they are known as "Sheathed Explosives". An explosive marked (Eq. S.) is one which, without sheath, is certified to be not less safe than an equivalent sheathed explosive of the same group. The explosives marked * are either not manufactured in Great Britain or are manufactured for export only.*

**PART 1.—EXPLOSIVES PERMITTED FOR GENERAL USE.
PERMISSIBLE MAXIMUM CHARGE 28 OZ.
SECTION A(1). NITROGLYCERINE EXPLOSIVES,
GELATINOUS TYPE.**

*Ajax (S)	Plastex No. 1 (S)
Antifrost Celadyne	Plastex P. (S)
Antifrost Gelammonite No. 2 (S)	Polar Ajax (S)
Antifrost Gelammonite No. 2 A. (S)	Polar Ajax C. (S)
Antifrost Gelammonite No. 3 (S)	Polar Samsonite No. 3 (S)
Antifrost Nitrox No. 2 (S)	Polar Saxonite No. 3 (S)
Antifrost Nitrox No. 2 A. (S)	Polar Saxonite No. 3 C. (S)
Antifrost Nitrox No. 3 (S)	*Samsonite No. 3 (S)
Driftex (S)	*Saxonite (S)
Driftex P. (S)	*Saxonite No. 1
Eversoft Vigorex (S)	*Stonobel (S)
Plastex (S)	

**SECTION A(II). NITROGLYCERINE EXPLOSIVES,
POWDERY TYPE.**

*A.2. Monobel (S)	Oakley Explosive No. 850
Antifrost Penrhyn Powder (S)	Pencol (Eq. S.)
Antifrost Penrhyn Powder No. 2 (S)	Polar A.2. Monobel (S)
Bettacol (S)	Polar Dynobel (S)
Colex No. 1 (S)	Polar Dynobel No. 2 (S)
Colex No. 2 (S)	*Polar Monobel No. 7 (S)
Compex No. 1 (Eq. S.)	Polar Rex Cliffe (S)
Dunelmite (S)	Polar Thames Powder (S)
*Dynobel No. 2 (S)	Polar Viking (S)
Equicol (Eq. S.)	Primex No. 1
Espex (Eq. S.)	Primex No. 2
Eversoft Seamex (S)	Simex No. 2 (S)
Eversoft Tees Powder (S)	Simex No. 3 (S)
Minex (S)	*Super Ammodyne
*Monobel No. 1	Superkol (S)
Nobels Explosive No. 944	*Thames Powder (S)
Nobels Explosive No. 964	Unibel (Eq. S.)
Nobels Explosive No. 1025	Unibel H. (Eq. S.)
Nobels Explosive No. 1026	Unigex (Eq. S.)
Nobels Explosive No. 1028 (Eq. S.)	Unikol (Eq. S.)
Nobels Explosive No. 1105	Wincoal Extra (S)
*North Pole Nitro Baelenite No. 3 (S)	Wincoal Powder

SECTION B.—NON-NITROGLYCERINE EXPLOSIVES.

Ammonite No. 1 P	Hawkite No. 1 (S)
Bellite No. 1 A.	Hawkite No. 2 (S)
Bellite No. 2 (S)	Hawkite No. 3 (S)
Celmonite	Kentite
Denaby Powder	Norsabite (S)
Denaby Powder No. 2 (S)	Roburite No. 4
Douglas Powder (S)	Tolamex
Expedite	Tuthilite
Fortex	X.L. Hawkite (S)
Gathurst Powder	

**PART 2.—EXPLOSIVES PERMITTED ONLY FOR BRINGING DOWN COAL.
PERMISSIBLE MAXIMUM CHARGE 18 OZ.**

NITROGLYCERINE EXPLOSIVES, POWDERY TYPE.

A.1 Rounkol (S)	Lodensite No. 1
Antislak P. (S)	Lodensite No. 2
Eversoft L.D. Powder	Lodex (S)
	Rounkol

PART 3.—LIST OF CARDUX AND HYDROX CARTRIDGES PERMITTED UNDER THE COAL MINES (CARDUX AND HYDROX) ORDER, 1941.

Cardux Cartridges.

Type	Diameter	Charge (CO ₂)	Disc	Cardux Safety Heater Type	Alternative Heater Type
	Inches	Oz.	Inch		
E28	1 $\frac{1}{2}$	14 \pm 2	{ 3/32 7/64 $\frac{1}{8}$ 9/64 3/32 7/64	D 47.5 D 55 D 65 D 75 D 55 D 65	D 47.5* D 55* D 65* D 75* D 55* D 65*
E33	1 $\frac{1}{2}$	17 \pm 2	{ $\frac{1}{8}$ 9/64	D 75 D 90	D 75* D 90*
B9	1 $\frac{3}{4}$	4 \pm 1	{ 7/64 or 9/64	D 27.5	D 27.5*
B20	1 $\frac{3}{4}$	10 \pm 2	{ 7/64 9/64	D 45 D 62.5	B 38 or D 45* B 38 or D 62.5*
B37	1 $\frac{3}{4}$	21 \pm 2	{ 7/64 9/64	D 62.5 D 77.5	B47.5 or D32.5* B62.5 or D77.5*
F57	2	29 \pm 3	{ 3/32 9/64 11/64 13/64 $\frac{1}{8}$	D 50 D 77.5 D 100 D 115 D 75	D 50* D 77.5* D 100* D 115* B 50 or D 75*
C74	2 $\frac{1}{2}$	44 \pm 4	{ 3/16 7/32	D 120 D 145	B 80 or D 120* D 145*
LP/2	2	43 \pm 3	{ 3/32 9/64	D 62.5 D 77.5	D 62.5* D 77.5*
LP/2S	2	21 \pm 3	{ 3/32 9/64	D 45 D 62.5	D 45* D 62.5*
LP/2 $\frac{1}{2}$	2 $\frac{1}{2}$	58 \pm 6	{ $\frac{1}{8}$ 3/16	D 75 or D 90 D 120 or D 145	D 75* or D 90* D 120* or D 145*
LP/2 $\frac{1}{2}$ L	2 $\frac{1}{2}$	96 \pm 6	{ $\frac{1}{8}$ 3/16	D 100 D 160	D 100* D 160*

* With powder fuse igniter.

Hydrox Cartridges.

Type	Diameter	Charge (Hydrox Powder)	Disc	Igniter
C74	Inches	Grams.	Inch	
B37	2 $\frac{1}{2}$ 1 $\frac{3}{4}$	800 400 450 480	{ 3/16 7/64 $\frac{1}{8}$ 9/64	Hydrox No. 2 Hydrox No. 3

B. SHOT-FIRING APPARATUS.*
LIST OF APPROVED TYPES OF APPARATUS.

Submitted by	Name of Apparatus
MAGNETO EXPLODERS.	
<i>(i) Low Tension (for single shots).</i>	
1. British Electrical & Manufacturing Co., 7-13 Clavering Place, Newcastle-on-Tyne, 1.	Monarch 1-Shot L.T.
2. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	Davis No. 15X (1932) L.T. Davis-Derby "Demon" L.T. Davis "Little Demon" L.T.
3. General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.	G.E.C. No. L5144C L.T.
4. Marston Excelsior Ltd., Wobaston, Fordhouses, Wolverhampton.	Little Demon L.T.
<i>(ii) High Tension (for single shots).</i>	
1. British Electrical & Manufacturing Co., 7-13 Clavering Place, Newcastle-on-Tyne, 1.	Monarch 1-Shot H.T.
2. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	Davis Derby "Demon" H.T. Davis "Little Demon" H.T.
3. General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.	G.E.C. No. L5143C H.T.
BATTERY EXPLODERS.	
<i>(i) Low Tension (for single shots).</i>	
1. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	Davis (1932) L.T.
2. General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.	G.E.C. (1933) L.T.
<i>(ii) Multi-shot.</i>	
John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	Davis-Derby Multi-shot L.T. Derby 6-shot L.T.

* Exploders approved prior to 1 January, 1934, were formally reapproved on that date under Clause 6 (h) (i) of the Explosives in Coal Mines Order, 1934.

FIREDAMP DETECTORS.

(APPROVED IN PURSUANCE OF NO. 1(b) OF THE COAL MINES GENERAL REGULATIONS (FIREDAMP DETECTORS), 1939.)

LIST OF APPROVED TYPES.

1.—(a) Every approved type of flame safety hand lamp shall be deemed to be an approved type of firedamp detector, with the exception of types which are either—

- (i) not capable of giving a working light throughout the shift ; or
- (ii) fitted with a self-contained re-lighting device ; or
- (iii) fitted with copper gauzes.

(b) A flame safety lamp which does not comply with the minimum standard of lighting laid down in General Regulations shall not be used in any place in the mine to which such standard applies, except with the written permission of the manager and as a supplementary lamp.

Name of Apparatus	Date of Approval
2. Ringrose Automatic Firedamp Alarm.	23 March, 1939
3. Ringrose Miner's Lamp, Type C.H.4.	23 March, 1939
4. Ringrose Automatic Firedamp Alarm, Type 47/125.	28 April, 1948
5. Naylor Spiralarm Type M.	26 November, 1949
6. Cambrian No. 3 M Lamp.	28 October, 1949

FIRST AID.

LIST OF SOCIETIES AND OTHER BODIES APPROVED FOR THE PURPOSE OF GRANTING CERTIFICATES OF PROFICIENCY IN FIRST AID.*

The Minister is advised that only certificates obtained subsequent to the date of approval can be considered as qualifying for the purposes of the Regulations and Rules.

	Date of approval.
Birmingham University ...	5 June, 1915.
British Red Cross Society ...	11 May, 1915.
Glamorganshire Education Committee†	2 February, 1915.
Heriot-Watt College, Edinburgh ...	9 February, 1915.
King's College, Newcastle-upon-Tyne‡ ...	19 June, 1939.
Leeds University ...	8 May, 1950.
St. Andrew's Association ...	10 July, 1913.
St. John Ambulance Association ...	10 July, 1913.

* See Clause (iv) of Part I of the Second Schedule to the Coal Mines General Regulations (Rescue), 1928, page 126, Nos. 5 and 7 of the Coal Mines General Regulations (First Aid), 1930, page 88 ; and Rule 1 of the Rules made by the Mining Qualifications Board as to the Qualification of Applicants for First and Second-Class Certificates of Competency, page 159.

† Certificates not issued by this body since 1932, but examinations on its behalf are conducted by St. John Ambulance Association.

‡ Formerly Armstrong College (date of approval, 21 November, 1921).

LIGHTING.

A. LIST OF APPROVED SAFETY LAMPS.

LIST OF SAFETY LAMPS APPROVED IN PURSUANCE OF SECTION 33 OF THE COAL MINES ACT, 1911 (AS AMENDED BY THE COAL MINES GENERAL REGULATIONS (SAFETY LAMPS), 1927, AND OF THE COAL MINES (LIGHTING) GENERAL REGULATIONS, 1947—

1. *Schedule A (or Lighting Schedule).*

Types of lamps approved as complying with the standard of lighting performance prescribed under Regulation 5 (1) of the Coal Mines (Lighting) General Regulations, 1947—

CLASS 1.

Electric Cap Lamps.*

Submitted by	Name of Type	Bulb Rating	
		Volts	Amperes
1. Ceag Ltd., Queen's Road, Barnsley.	Ceag 4 V Jellac ...	4.0	0.55 (twin filament)
	Ceag A 6 ...	3.75	1.0 (single or twin filament)
	Ceag A 7 ...	3.75	1.0 (single or twin filament)
	Ceag A 7 ...	3.6	1.0 (with or without pilot bulb)
	Ceag CgL1 ...	4.0	1.0 (with or without pilot bulb)
2. Concordia Electric Safety Lamp Co. Ltd., Luma Works, Sanatorium Road, Cardiff.	C.L.3 and } ...	3.75	1.0 (main filament)
	C.L.3/M } ...	3.6	1.0 (main filament)
	C.L.3/P ...	3.6	1.0 (main filament)
	C.L.A.	3.6	1.0 (main filament)
	C.L.3/4, C.L.3/5, C.L.3/6	3.6	1.0
	C.L.A./4, C.L.A./5, C.L.A./6	3.6	1.0
3. Thomas A. Edison Ltd., Carfin Industrial Estate, New Stevenston, Lanarkshire.	Model K1-PMX	3.6	1.0
4. Ionic Alkaline Batteries Ltd., Victoria Street, London, S.W.1.	Ionic N.C.113C ...	4.0	1.0 (with pilot bulb)
5. Nife Batteries, Hunt End Works, Redditch.	N.C. 113, and } N.C. 113A ...	3.75	1.0 (main filament)
	Nife N.C. 113B ...	3.6	1.0
	Nife N.C. 113C ...	3.6	1.0 (with pilot bulb)
	D 4	4.0	0.65
6. Oldham & Son Ltd., Denton, Manchester.	G W	4.0	0.8
	Oldham-Wheat, } W. and W.M. ...	4.0	0.8 (twin filament)
	PT8/3	3.6	1.0
	SS1	4.0	0.8
7. Patterson Lamps Ltd., Second Avenue, Team Valley, Gateshead-on-Tyne, 11	SS2	4.0	0.8
	T.1	4.0	0.8
8. J. Youle & Co. Ltd., Millgate Works, Rotherham.			

* For list of approved types of bulbs, see page 204.

CLASS II.

(a) Electric Hand Lamps.*

Submitted by	Name of Type	Bulb	Rating
1. Ceag Ltd., Queen's Road, Barnsley.	Ceag Alkaline, A.H.1	2.5	1.75
2. Concordia Electric Safety Lamp Co. Ltd., Luma Works, Sanatorium Road, Cardiff.	Ceag Alkaline, C.18T	2.5	1.75
	Concordia KG2	2.5	1.75
3. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	D.1	2.5	1.75
4. Ionic Alkaline Batteries Ltd., Victoria Street, S.W.1.	Ionic N.20T. ...	2.5	1.75
		2.5	1.5
5. Nife Batteries, Hunt End Works, Redditch.	Nife N.20	2.5	1.75
	Nife N.20T. ...	2.5	1.5
		2.5	1.75
		2.5	1.5
6. Oldham & Son Ltd., Denton, Manchester.	S (including S4V) ...	4.0	1.0
	SP	4.0	1.0
7. Patterson Lamps Ltd., Second Avenue, Team Valley, Gateshead-on-Tyne, 11.	K 2	2.5	1.75
	K 3	2.5	1.75
	G 4	4.0	1.0
8. E. Thomas & Williams Ltd., Cambrian Lamp Works, Aberdare.	K 2	2.5	1.75
	Nife N.20	2.5	1.75
		2.5	1.5
9. Wolf Safety Lamp Co. (Wm. Maurice) Ltd., Saxon Road Works, Sheffield, 8.	Wolf Alkaline No. 950/E.	2.5	1.75
10. J. Youle & Co. Ltd., Millgate Works, Rotherham.	Youle Y 4	4.0	1.0

* For list of approved types of bulbs, see page 204.

(b) Flame Lamps.

Submitted by	Name of Type
1. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	Dalight
2. Hailwood & Ackroyd Ltd., Morley, Leeds.	Ackroyd's Improved No. 1 Hailwood WB Improved H.C.P. No. 1 Hailwood WB Improved H.C.P. No. 2
3. J. H. Naylor Ltd., Central Brass Works, Wigan.	Naylor, S. H.
4. Patterson Lamps Ltd., Second Avenue, Team Valley, Gateshead-on-Tyne, 11.	H.C.P. H.C.P.2 H.C.P.9
5. Protector Lamp & Lighting Co. Ltd., Eccles, Manchester.	Teale's Mark VII

2. Schedule B.

Types of lamps which are approved but do not comply with the standard of lighting performance prescribed under Regulation 5 (1) of the Coal Mines (Lighting) General Regulations, 1947.

CLASS I.—TYPES APPROVED FOR GENERAL USE.

(a) Electric Lamps.

Submitted by	Name of Type
1. Ceag Ltd., Queen's Road, Barnsley.	Ceag A5 Cap* Ceag 4-volt Type 4* Ceag 4-volt Pillarless Ceag Shaft and Roadway Ceag Shaft and Roadway, B Concordia KG* Concordia CKD Cap* Concordia SCL*, SCL 2*, and SCL/M Cap* Concordia Shaft and Roadway LAK Locomotive, Shaft and Roadway D2SM*
2. Concordia Electric Safety Lamp Co. Ltd., Luma Works, Sanatorium Road, Cardiff.	Davis-Derby 2 Cap* Model J Cap* P2M Cap* Edison Cap Federation
3. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	Gray-Sussmann 4C*
4. Thomas A. Edison Ltd., Carfin Industrial Estate, New Stevenston, Lanarkshire.	C.H.4*
5. Federation Lamp Co., Saxon Road Works, Sheffield, 8.	Nife NC 102 Cap*
6. W. E. Gray, 17/19 Curnock Street, London, N.W.1.	Oldham-Wheat Q* and QM Cap* F (including C4)* GQ Cap*
7. International Gas Detectors Ltd., Great Wilson Street, Leeds.	S* (including S4V*) with 4.0 volt 0.75 amp. bulb
8. Nife Batteries, Hunt End Works, Redditch.	Oldham 6-volt Pillarless
9. Oldham & Son Ltd., Denton, near Manchester.	Oldham Shaft and Roadway, R.1 and R.2 Oldham SLEM Hand PT8 Cap* G2
10. Patterson Lamps Ltd., Second Avenue, Team Valley, Gateshead-on-Tyne, 11.	L 1 Floodlight L 2 Inverted Floodlight K 3* K 4*
11. E. Thomas & Williams Ltd., Cambrian Lamp Works, Aberdare.	Wolf Alkaline No. 830C*, 830CR* and 830L Cap* Slimmer Cap*
12. Wolf Safety Lamp Co. (Wm. Maurice) Ltd., Saxon Road Works, Sheffield, 8.	Wolf Alkaline 950/00* Wolf Alkaline Nos. 950/0, 950/E1, 950/I, 950/II and 950/00I Wolf Alkaline Nos. 950A/E, 950B/E, 950A/00, 950B/00 and 950A/1 Wolf Alkaline Cap No. 830B

(b) *Flame Lamps.*

Submitted by	Name of Type
1. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	Davis-Kirkby No. 2A (Haydock Pattern)* Davis 2 BA* No. 1 Davis-Marsic, Davis-Marstry and Davis-Marstry Nos 2, 2A and 2B Davis-Kirkby Hailwood ADC 4* Hailwood Nos. 01, 01B and 01S NP*
2. Hailwood & Ackroyd Ltd., Morley, Leeds.	Marsaut A and E Bifold Burner A1, A3 and B7
3. J. H. Naylor Ltd., Central Brass Works, Wigan.	Premier Nos. 7, 8 and 11 Premier Marsaut No. 12 Patterson No. 12 CT33A* and CT33AA*
4. Patterson Lamps Ltd., Second Avenue, Team Valley, Gateshead-on-Tyne, 11.	Prestwich Patent Protector (SL and BL)
5. Premier Lamp & Engineering Co. Ltd., Moorfield Works, Whingate, Armley, Leeds, 12.	Nos. 1 J.C.M. Rothwell A.
6. Protector Lamp & Lighting Co. Ltd., Eccles, Manchester.	Teales Protector Nos. 1 and 2 Teales Standard Bonnetted Marsaut No. 4 Teales Mueseler or Thornbury No. 6 Cambrian No. 4*
7. E. Thomas & Williams Ltd., Cambrian Lamp Works, Aberdare.	Cambrian Nos. 1 and 9E
8. Wolf Safety Lamp Co. (Wm. Maurice) Ltd., Saxon Road Works, Sheffield, 8.	Wolf† 7S, 7SMB 7SE and 7SEMB

* These lamps passed the 1934 Schedule A Lighting requirements but do not meet the higher standard of the 1947 Lighting Regulations. Most of these types are temporarily permitted to remain in use as Schedule A lamps until supply difficulties are overcome.

† Formerly known as "Wolf Patterson".

CLASS II.—TYPES APPROVED FOR USE AS OFFICIALS' INSPECTION LAMPS.

(a) *Electric Lamps.*

Submitted by	Name of Type
1. Ceag Ltd., Queen's Road, Barnsley.	Ceag Deputy Ceag Inspection Ceag Inspection Types A, 3 and 4 Ceag Bull's Eye Gas Detecting, No. 3* Ceag Inspection Type A.1 Ceag A7 Tublight Ceag Methanometer

Submitted by	Name of Type
2. Concordia Electric Safety Lamp Co. Ltd., Luma Works, Sanatorium Road, Cardiff.	Concordia Shunters II Concordia KBO and KGS Concordia S.C.L/O Cap Handy I, II and III Officials' Midget I and II Officials' Thor Bull's Eye (NPE Surveyors) Federation Rescue
3. Federation Lamp Co., Saxon Road Works, Sheffield, 8.	Ionic N.H.113 Hand
4. Ionic Alkaline Batteries Ltd., Victoria Street, London, S.W.1.	Ionic G.10 Hand
5. Nife Batteries, Hunt End Works, Red- ditch.	Nife N.H.113 Hand
6. Oldham & Son Ltd., Denton, near Man- chester.	Nife G.10 Hand Oldham B.L.E., E.L.E. Hand and S.L.E. Oldham-Wheat Q.L.E. and Q.S. Oldham Q.P. Chest Lamp Oldham WS—M Oldham QLE—M Oldham Q.S.—M G.W. Surveyors Cap "Tanka" Inspection Wolf Alkaline Nos. 950A/III/0, 950S/III/0, 966/E/0, 966/E/00 and 641
7. Wolf Safety Lamp Co. (Wm. Maurice) Ltd., Saxon Road Works, Sheffield, 8.	Aldwarke Officials'
8. J. Youle & Co. Ltd., Millgate Works, Rotherham.	

(b) *Flame Lamps.*

1. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	Davis-Boss A* No. 3 Davis-Boss No. 7 Davis-Diabl
2. Hailwood & Ackroyd Ltd., Morley, Leeds.	Beacon Gas Detector No. 2* Hailwood Nos. 01A, 01BA and 06
3. J. H. Naylor Ltd., Central Brass Works, Wigan.	Hailwood ADC4 Officials' Marsaut A1 and Marsaut E1
4. Patterson Lamps Ltd., Second Avenue, Team Valley, Gateshead-on-Tyne, 11.	Bifold Burner Officials' A2 and B8
5. Premier Lamp & Engineering Co. Ltd., Moorfield Works, Whingate, Armley, Leeds.	G.T.L.9* M.I.G. Premier Nos. 7A, 7R* and 7AR*
6. Protector Lamp & Lighting Co. Ltd., Eccles, Manchester.	Prestwich Patent Protector, A Prestwich Patent Protector (self- contained igniter) Type 6* and 6A* Protector M.C.40
7. E. Thomas & Williams Ltd., Cambrian Lamp Works, Aberdare.	1A (J.C.M.) Rothwell A.1 Teale's Standard Bonnetted Mar- saut No. 4A Teale's Protector Nos. 1A and 2A
8. Wolf Safety Lamp Co. (Wm. Maurice) Ltd., Saxon Road Works, Sheffield, 8.	Cambrian Nos. 1A and 4 (includ- ing No. 4 Officials' Relighter) Cambrian No. 2A* Wolf† Nos. 7RS and 7RMBS*

* Approved for use by deputies and shot-firers for gas-testing purposes. See footnote on page 74.

† Formerly known as "Wolf Patterson".

CLASS III.—TYPES APPROVED FOR USE AS OFFICIALS' AUXILIARY LAMPS.

(a) *Electric Lamps.*

Submitted by	Name of Type
1. Ceag Ltd., Queen's Road, Barnsley.	Ceag Universal Torch 2-cell and 3-cell
	Ceag Bull's Eye No. 3
	Ceag Type BE3 Signalling Lamp
	Ceag Inspection Type A.1
	Ceag A7 Tublight
2. Concordia Electric Safety Lamp Co. Ltd., Luma Works, Sanatorium Road, Cardiff.	Concordia Emergency Torch 2-cell and 3-cell
	Thor Pocket Emergency (PEB Surveyors)
	PB Torch
	Anti-Explosive Torch
	Mining Dial Torch
3. Cooke Troughton & Simms Ltd., Haxby Road, York.	Davis-Derby Flash
4. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	G.E.C. Safety Torch L6060
5. General Electric Co. Ltd., Witton, Birmingham.	Standard Pen Torch Mark II
6. Hilger & Watts Ltd., 48 Addington Square, S.E.5.	NG7 Handlamp
7. Nife Batteries, Hunt End Works, Redditch.	NH10A Handlamp
8. Oldham & Son Ltd., Denton, near Manchester.	Oldham Torch T.D.1
9. Watts, Fincham (1932) Ltd., 2 Gt. Winchester Street, London, E.C.2.	Oldham-Wheat Q.S.B.
10. Wolf Safety Lamp Co. (Wm. Maurice) Ltd., Saxon Road Works, Sheffield, 8.	T.D.1A. Torch
	Wefco Model 5 Safety Hand Torch
	Wolf Alkaline Nos. 966, 966A and 966C
	Wolf D B. Torch

(b) *Flame Lamps.*

1. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	Davis-Boss "R"** and "R.1"**
2. Hailwood & Ackroyd Ltd., Morley, Leeds	Davis-Derby Dwarf Deputy and Dwarf Deputy No. 1*
3. E. Thomas & Williams Ltd., Cambrian Lamp Works, Aberdare.	Beacon Gas Detector*
4. Wolf Safety Lamp Co. (Wm. Maurice) Ltd., Saxon Road Works, Sheffield 8.	WB. Gas Detector*

* Approved for use by deputies and shot-firers for gas-testing purposes. See footnote on page 74.

CLASS IV.—TYPES APPROVED FOR USE ON HORSES.

Submitted by	Name of type
1. Concordia Safety Lamp Co. Ltd., Luma Works, Sanatorium Road, Cardiff.	Concordia Midget Pony
2. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.	Davis-Hunter Pony
	Davis-Sharlston Pony

NOTE.

For certain types of lamps originally submitted for test—

By	Now see
Ackroyd & Best Ltd.	Hailwood & Ackroyd Ltd.
“Ceag” Miners’ Supply Co. Ltd.	Ceag Ltd.
T. A. Hodgkiss & W. E. Smith	J. Youle & Co. Ltd.
Richard Johnson, Clapham & Morris	Protector Lamp & Lighting Co. Ltd.
J. H. Rothwell & Co.	
W. E. Teale & Co. Ltd.	
J. H. Naylor	J. H. Naylor Ltd.
Batteries Ltd.	Nife Batteries
Patterson & Co.	Patterson Lamps Ltd.
Thor Electric Safety Lamp Co. Ltd.	Concordia Electric Safety Lamp Co. Ltd.
Thor Lamps & Supplies Ltd.	
Wolf Safety Lamp Co.	Wolf Safety Lamp Co. (Wm. Maurice) Ltd.

B. LAMP GLASSES FOR USE IN FLAME LAMPS.

LIST OF SAFETY LAMP GLASSES APPROVED IN PURSUANCE OF SECTION
33 OF THE COAL MINES ACT, 1911.

Glasses manufactured by the following manufacturers and bearing the manufacturer's trade mark as reproduced below are approved, until further Order, for use in any flame safety lamp of approved type.

In each case the approval is subject to the following condition, in addition to any conditions specified in the official description of the lamp in which the glass is to be used :—

(a) That in addition to bearing the trade mark each glass is marked to show its size, either (i) by a numeral following a lamp-maker's initials as specified in the official description of the lamp in which the glass is to be used, or (ii) by numerals giving the maximum external diameter and mean height of the size (the former to be placed first).

SUBMITTED BY

TRADE MARK OF GLASS

1. Butterworth Brothers Ltd., Newton Heath, Manchester, 10.



2. Hailwood & Ackroyd Ltd., Morley, near Leeds.

"HAILUXO"



3. J. A. Jobling & Co. Ltd., Wear Glass Works, Sunderland.

PYREX



4. John Moncrieff Ltd., Perth.

5. Societe Anonyme Val St. Lambert, Val St. Lambert, Belgium (Agents: Hailwood & Ackroyd Ltd., Morley, near Leeds.)

VAL ST. LAMBERT
D.S.4

C. PYROPHOR RELIGHTER BARS.

LIST OF APPROVED BRANDS.

Submitted by

1. British Flint & Cerium Manufacturers Ltd., Tonbridge, Kent.
2. Premier Lamp & Engineering Co. Ltd., Leeds.
3. Wolf Safety Lamp Co. (Wm. Maurice) Ltd., Sheffield.

Brand

Carman
Phoenix
Pyrearthium

D. LAMP BULB RATINGS.

LAMP BULB RATINGS FOR USE IN ELECTRIC LAMPS.

List of Safety Lamp Bulb Ratings either approved or accepted as the ultimate standards for approved bulbs in pursuance of paragraph (1) of Regulation 6 of the Coal Mines (Lighting) General Regulations, 1947, for use in electric lamps to which Regulations Nos. 4-8 apply.

CATEGORY 1A RATINGS.

(Designed to comply with the requirements of safety lamps of modern design.)

Rating		Cap	Diameter of glass m.m.	Overall length m.m.	Type of Lamp
Volts	Amps.				
2.5	1.75	953	<i>Krypton</i>	18±2	43.5±2
2.5	1.75	E.14/23×15	18±2	45.5±2	Hand
3.6	1.0	E.10/13	18±1	31+1—2	Cap
3.75	1.0/1.0	B.15d/17	18±2	40±2	Cap
4.0	0.8	E.10/13	18±1	31+1—2	Cap
4.0	1.0	E.14/23×15	18±2	45.5±2	Hand

CATEGORY 1B RATINGS.

(Designed to comply with the requirements of safety lamps approved since 1934 and prior to the Lighting Regulations, 1947. Lamp bulbs in this Category are obsolescent but will remain in use until such time as those safety lamps which do not meet the requirements of the Lighting Regulations, 1947, have been withdrawn from use in mines.)

Rating		Cap	Diameter of glass m.m.	Overall length m.m.	Type of Lamp
Volts	Amps.				
4.0	0.55/0.55	B.15d/21	<i>Argon</i>	25±1	49±1
2.5	1.5	953	<i>Krypton</i>	18±2	43.5±2
2.5	1.5	E.14/23×15	18±2	45.5±2	Hand
4.0	0.75	E.14/23×15	18±2	45.5±2	Hand
4.0	0.75	Peg	18±2	47±2	Hand

CATEGORY 2 RATINGS.

(Designed to comply with the requirements of safety lamps approved since 1934 and prior to the Lighting Regulations, 1947, but for which insufficient technical information was available for the purpose of full approval test. Lamp bulbs in this Category are obsolescent and will be withdrawn in due course.)

Rating		Cap	Diameter of glass m.m.	Overall length m.m.	Type of Lamp
Volts	Amps.				
2.5	1.0	Argon	953	25±1	46.5±2
2.5	1.0/1.0		B.15d/21	25±1	49±1
3.75	1.0/1.0		B.15d/21	25±1	49±1
4.0	0.8/0.8		B.15d/21	25±1	49±1
3.6	1.0/0.5		B.15d/17	18±2	40±2.5
4.0	0.55		E.10/13	18±1	31+1—2

CATEGORY 3 RATINGS

(Approved for use in safety lamps of approved type but which will be used only in small numbers for experimental or trial purposes in mines.)

Rating		Cap	Diameter of glass m.m.	Overall length m.m.	Type of Lamp
Volts	Amps.				
2.5	1.0/1.0	Krypton	B.15d/17	18±2	40±2
3.75	1.0		E.14/23×15	18±2	45.5±2
4.0	1.0		953	18±2	43.5±2
4.0	1.0		E.10/13	18±1	31+1—2
4.8	0.8		E.10/13	18±1	31+1—2

Note.—Bulbs of these types are required to be marked with the name and/or trade mark of the manufacturer, together with their rated voltage and rated amperes and the special mark prescribed for the purpose by the Minister (see page 98).

The following manufacturers have obtained approvals in respect of one or more of the ratings listed above :

	<i>Trade Name.</i>
1. British Thomson-Houston Co. Ltd., Crown House, Aldwych, London, W.C.2.	Mazda
2. Ceag Ltd., Queen's Road, Barnsley.	Ceag (or Lumax)
3. Cryselco Ltd., Kempston Works, Bedford.	Cryselco
4. Edison Swan Electric Co. Ltd., Ponders End, Enfield, Middlesex.	Ediswan
5. General Electric Co. Ltd., Brook Green, Hammersmith, London, W.6.	Osram
6. Metropolitan-Vickers Electrical Co. Ltd., Bush House, Aldwych, London, W.C.2.	Cosmos
7. Philips Electrical Ltd., Century House, Shaftesbury Avenue, London, W.C.2.	Philips
8. Popes Electric Lamp Co. Ltd., 5 Arthur Street, London, W.C.2.	Elasta
9. Siemens Electric Lamps and Supplies Ltd., Dock Road, Preston.	Siemens

E. ELECTRIC LIGHTING APPARATUS.

LIST OF APPROVED ELECTRIC LIGHTING APPARATUS (OTHER THAN LOCKED SAFETY LAMPS).

(a) LIST OF APPROVED TYPES OF ELECTRICAL APPARATUS OPERATED FROM A SOURCE OF ELECTRIC POWER EXTERNAL TO THE LIGHTING UNIT (No. 10(2) (d) OF THE COAL MINES (LIGHTING) GENERAL REGULATIONS, 1947).

1. Any type of electric apparatus that complies with BSS.889/1947 with Type A glass, and has been duly certified in respect of its flame-proof enclosure by the Minister.
2. British Thomson-Houston Co. Ltd., Rugby.—Type U.T.F. Fluorescent Lighting Fittings.
3. General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.—Type IE single tube and twin tube fluorescent lamp fittings.
4. Siemens-Schuckert (Great Britain) Ltd., 30 New Bridge Street, London, E.C.4.—Type L.169 Well-Glass Lighting Fitting.

(b) LIST OF ELECTRIC LIGHTS OPERATED FROM A SOURCE OF ELECTRIC POWER ENCLOSED IN THE LIGHTING UNIT (No. 11 OF THE COAL MINES (LIGHTING) GENERAL REGULATIONS, 1947).

1. John Davis & Son (Derby) Ltd., All Saints' Works, Derby.—Pneumatic-electric lighting units, Types D40M, D60, and "Dafluor".
2. Wolf Safety Lamp Co. (Wm. Maurice) Ltd., Saxon Road Works, Sheffield, 8.—Wolf Air-turbo Lamps, Types 0444U and 0445U.

(c) LIST OF ELECTRIC LIGHTS WHICH ARE FITTINGS OR ACCESSORIES TO MACHINERY OR ELECTRIC PLANT (INCLUDING SIGNALLING APPARATUS) (NO. 11 OF THE COAL MINES (LIGHTING) GENERAL REGULATIONS, 1947).

1. Any type of electric lighting apparatus (including signalling apparatus) which is a fitting or accessory to machinery or electric plant

(a) if it is fixed in, or forms a constructive part of, apparatus which has been duly certified by the Minister in respect of its flameproof enclosure or as being intrinsically safe;

(b) if it forms a constructive part of machinery which is covered by a specific approval and the part which constitutes electric lighting equipment has been duly certified in respect of its flame-proof enclosure by the Minister.

2. Safety in Mines Research Establishment of Ministry of Fuel and Power—Lighting equipment for cinematography, and lighting equipment for photography.

LOCOMOTIVES.

LIST OF LOCOMOTIVES APPROVED FOR THE PURPOSE OF REGULATION 5(4) OF THE COAL MINES (LOCOMOTIVES) GENERAL REGULATIONS, 1949.

A. DIESEL LOCOMOTIVES.

Submitted by	Name of Locomotive
1. Hudswell, Clarke & Co. Ltd., Leeds.	100-h.p. "Hudswell Clarke" } 65-h.p. "Hudswell Clarke" } Mines Type Diesel Loco- motive
2. Hunslet Engine Co. Ltd., Leeds.	20/25-h.p. "Hunslet" } Mines Type Diesel Locomotive 50-h.p. "Hunslet" do. 50-h.p. Mark II "Hunslet" do. 100-h.p. "Hunslet" do. 100-h.p. Mark II "Hunslet" do. 93/102-h.p. "Hunslet" do. 65-h.p. Mark III "Hunslet" do. 24-h.p. "Hunslet" do. 70-h.p. "Hunslet" do. 100-h.p. do.
3. North British Locomotive Co. Ltd., Glasgow.	44/48-h.p. and 33/40-h.p. "Ruston" } Class "D.L." Locomotive 25/30-h.p. and 16/20-h.p. "Ruston" } Class "D.L." Locomotive 48-h.p. and 40-h.p. "Ruston" Class "D.L.G." Locomotive
4. Ruston & Hornsby Ltd., Lincoln.	100-h.p. Class "D.L.G." Locomotive 20-h.p. and 30-h.p. "Ruston" Class "D.L.G." Locomotive

B. STORAGE BATTERY LOCOMOTIVES.*

Submitted by	Name of Locomotive
British Jeffrey-Diamond Ltd., Wakefield, Yorks.	Type BDM—20-BU Storage Battery Locomotive

* Certain Locomotives that were in use or on order before the 20th September, 1949, have been given limited approval to permit their continued operation at the mines concerned.

METHANOMETERS.

(APPROVED IN PURSUANCE OF 2 (i) (a) OF THE COAL MINES (VENTILATION) GENERAL REGULATIONS, 1947.)

LIST OF APPROVED TYPES.

Name of Apparatus	Date of Approval
1. The McLuckie Methanometer, Type M (Methanometer Approval No. 1)	26 September, 1949
2. Ringrose Methane Recorder (Methanometer Approval No. 2)	26 September, 1949
3. M.S.A. Type W.8 Methanometer (Methanometer Approval No. 3)	13 May, 1950
4. Ringrose Methanometer Type IV (Methanometer Approval No. 4)	5 October, 1950

PROTECTIVE EQUIPMENT.

CERTIFICATES HAVE BEEN ISSUED IN RESPECT OF THE FOLLOWING TYPES OF SAFETY HATS.

Submitted by	Name of Hat
1. Richard A. Bathgate, London Life Building, Derby Square, Liverpool, 2.	Bathgate Miners' Helmets— (a) Standard type with peak (b) with retractable eye and face shield
2. The Bushing Co. Ltd., Queensway, Team Valley Trading Estate, Gateshead-on-Tyne.	Type P.178 Safety Helmet
3. Helmets Ltd., Meat Factory, Wheat-hampstead, St. Albans.	Type M588 Cromwell Helmet
4. Patent Pulp Manufacturing Co. Ltd., Thetford, Norfolk.	Type 100 Safety Hat
5. Siebe, Gorman & Co. Ltd., Davis Road, Tolworth, Surrey.	Cool Cap Safety Hat

RESCUE APPARATUS.

(a) LIST OF BREATHING APPARATUS APPROVED FOR USE IN MINES AND AT CENTRAL RESCUE STATIONS.*

Submitted by	Name of Apparatus
1. American Atmos Corporation.	Paul
2. Guest & Grimes Ltd.	Blackett's Aerophor Brown-Mills
3. Mine Safety Appliances Co.	Gibbs
4. Rotherham and District Rescue Station Board.	Rotherham
5. Siebe, Gorman & Co. Ltd.	Lungovox Proto (Mark I) Proto Mark II H and II L Proto Mark III H and III L Proto Mark IV H and IV L Vitox Mark I Vitox Mark II

(b) LIST OF SMOKE HELMETS, ETC., APPROVED FOR USE IN MINES AND AT CENTRAL RESCUE STATIONS.*

Submitted by	Name of Apparatus
1. Siebe, Gorman & Co. Ltd.	Antipoys Short Distance Fresh Air Breathing Apparatus : "A" Full Mask Type; "B" Ori-Nasal or Half Mask Type; "C" Mouthpiece and Noseclip Type. Bloman Apparatus Briggs Equalizer Briggs Improved Equalizer Spirelmo Smoke Helmet Apparatus : "A" Speaker Type; "B" Ordinary Type. Securitas Smoke Helmet Apparatus : Helmet Type; Face Mask Type.
2. Simonis & Bremner.	

* See No. 11 of General Regulations dated 10 December, 1928, page 123.

LIST OF CURRENT M. & Q. FORMS USED AT MINES UNDER THE COAL MINES ACT, 1911.

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Form No.

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APPENDIX.

MEMORANDUM ON THE STORAGE OF EXPLOSIVES AT MINES.

Under the Coal Mines Act, 1911, and the Explosives in Coal Mines Orders, all explosives used at a mine to which the Act applies must be provided by the owner of the mine and a suitable place above ground must be provided for the storage of the explosive. A suitable place has also to be provided conveniently near the entrance of the mine, for the storage of the unused explosive which the workmen are required to bring out at the end of each shift. The storage place should be at a safe distance from a shaft, engine-house or other vital point.

In making provision for the storage of explosive, the mine owner or manager has to comply with the requirements of the Explosives Acts, 1875 and 1923, and the Orders made under those Acts, and the present memorandum is designed to explain briefly the nature of those requirements and the methods by which the storage accommodation required can be provided to suit the varying circumstances of different mines.

There are three ways in which explosive in sufficient quantity for mining purposes may be kept :—

1. In premises registered with the Local Authority.*
2. In a "store" licensed by the Local Authority.*
3. In a magazine licensed by the Secretary of State.

1. This method can be adopted where small quantities of explosive only are in store at any one time, and is often a suitable way of providing storage for unused explosive brought out of the mine when the main store is not conveniently near the mine entrance. The amount of explosive kept in this way must not exceed 200 lb. of gunpowder, or 60 lb. of other explosive or of mixed explosives. The conditions to be observed are contained in Section 22 of the Act and Order in Council No. 16 which should be consulted, but the main provisions are as follows :—

The place of storage must be registered with the Local Authority and (if explosive other than gunpowder is kept) the manager or other responsible person having charge of the premises must hold a certificate from the Police that he is a fit person to keep the explosives.

The storage place must be a building substantially constructed of brick, stone, iron or concrete or an excavation made in solid rock, earth, or mine refuse not liable to ignition. It must be entirely appropriated† to the keeping of explosive and must be detached from a dwelling-house. It must also be situated at a safe distance (say 15

* See Appendix (a), page 215.

† Very small quantities, however, viz. up to 50 lb. of gunpowder or 15 lb. of other explosive or of mixed explosives, may be kept in a building not so appropriated, provided they are kept in a substantial receptacle properly closed and secured and exclusively appropriated to the purpose.

yards, or less if suitable protection intervenes) from any highway, street, public thoroughfare or public place, but there are no further requirements as to the maintenance of certain distances between the storage place and other buildings and works in the vicinity.

The precautions mentioned in paragraphs 8, 11 and 13 of *Appendix (b)* to this Memorandum must be observed.

2. The second method provides for larger quantities, and includes four different kinds of "Stores", named Divisions A, B, C and D. The quantity of explosive that may be kept in a store of Division A is 300 lb. of gunpowder, or half that quantity of other explosives, or if both gunpowder and other explosives are kept, $\frac{1}{2}$ lb. of other explosive may be kept in lieu of each pound of powder not kept.* The quantities of explosive allowed in stores of Divisions B, C and D are 1,000 lb., 2,000 lb. and 4,000 lb. respectively of gunpowder, and of other explosives on the same scale as in the case of Division A, i.e. $\frac{1}{2}$ lb. of other explosive for each pound of powder not kept.* The conditions which apply to these stores are contained in Order in Council No. 6, and a summary of them is given in *Appendix (b)*.

The most important requirement which mine owners have to consider is that which provides that all stores shall be placed at certain distances from other buildings and works. An important modification in these distances, however, is often of material assistance to mine owners in cases where the surface space at the mine is restricted. By Order in Council No. 6c it is provided that the distances may, in the case of a store of Divisions B, C and D, be reduced by half provided the protected work is in the occupation of the licensee and is completely screened from the store by a natural or artificial mound of earth, or other suitable material not less than three feet thick at the height of the eaves of the store. Further, it is provided by the same Order in Council, that the distance between a store in any of the four divisions and a mineral or private railway or tramway line worked by the occupier need not be more than 25 yards, if the door or doors of the store be closed and secured when and so long as any locomotive driven by steam is within 50 yards of the store.

3. In cases where larger quantities than those mentioned above are required or where, owing to special local circumstances, it is impracticable to find a suitable place for a store, it will be necessary to provide a magazine under licence of the Secretary of State. In the first instance, it is advisable to communicate with His Majesty's Inspectors of Explosives, Home Office, London, S.W.1, who will be prepared to consider the special requirements of each case and to recommend such conditions to suit the circumstances as may safely be entertained. The quantity of explosive that may be kept in a magazine is limited only by the provisions of the licence.

Workmen's canisters may be filled and kept in any place of storage provided as above.

* Under an Order in Council of 8 November, 1940, No. 1992, the same quantities of other explosives as of gunpowder may now be kept.

Appendix (a).

LOCAL AUTHORITIES.

1. *England and Wales.*

The Town Council is the Local Authority in any County Borough;

Quarter Sessions Borough (other than a County Borough) having over 10,000 inhabitants according to the Census of 1881;

Borough having over 10,000 inhabitants according to the Census of 1881, for which a special Order has been made under Section 68 of the Explosives Act.

Elsewhere the Local Authority is the County Council which has, however, a power of delegation under the Act to

- (a) a Committee of its own body,
- (b) an Urban or Rural District Council,
- (c) the Justices in Petty Sessions.

The Councils of County Boroughs have the same power of delegation as County Councils.

2. *Scotland.*

In any Royal or Parliamentary Burgh the Local Authority is the Magistrates and Town Council.

Elsewhere the Local Authority is the County Council which has, however, power of delegation to a joint Committee of its own body and of any Town Councils within the County.

In Duns and Govan, for which a special Order has been made under Section 112 of the Act, the Police Commissioners are the Local Authority.

3. *Northern Ireland.*

In any Urban District the Local Authority is the Urban District Council, elsewhere it is the County Council.

(In any harbour, the Harbour Authority is the Local Authority.)

Appendix (b).

SUMMARY OF THE MAIN REQUIREMENTS AS TO LICENSED STORES.

1. The store must be licensed by the Local Authority in the name of the occupier, either for gunpowder or mixed explosives.

2. The licence must be renewed annually.

3. The store must not be situated below ground in any mine or quarry, or in any tunnel, or other underground place in which mine, quarry, tunnel or underground place any work is being carried on, or in which any persons are employed, or in any place opening into, from, or out of such mine, quarry, tunnel or underground place, or in communication therewith.

4. All buildings and places adjoining each other and occupied together are deemed to be one store, and must accordingly be included in one licence.

5. The following distances must be maintained from the store :—

Protected Works of Class 1.

Dwelling-house.
 Shop.
 Room, of any kind.
 Workshop, of any kind.
 *Mineral or private railway,
 whether or not worked by
 steam.
 Furnace or kiln.
 Fire for boiler, machine or
 manufacturing purpose.
 Magazine for explosive.
 Registered premises.
 Highway, public footpath, or pro-
 menade.
 Open place of resort for the public,
 or for persons carrying on any
 trade or business.
 Canal or navigable water.
 Dock, river-wall or sea-wall.
 Pier or jetty.
 Reservoir.

In occupation of licensee,
 or with consent in writing
 of occupier.

Protected Works of Class 2.

Dwelling-house.
 Shop.
 Room of any kind.
 Workshop of any kind.
 Mineral or private railway,
 whether or not worked by
 steam.
 Furnace or kiln.
 Fire for boiler, machine or
 manufacturing purpose.
 Magazine for explosive.
 Store for explosive.
 Registered premises.
 Factory.
 Public railway.
 Church or chapel.
 University, college or school.
 Hospital or public institution.
 Town Hall or Court of Justice.
 Theatre or covered market.
 Building where persons are accustomed
 to assemble.
 Government public buildings.

Without the consent of the
 occupier.

Store belonging to	Distances from Protected Works of Class 1†	Distances from Protected Works of Class 2
Division A ...	25 yards	50 yards
†Division B ...	50 yards	100 yards
†Division C ...	75 yards	150 yards
†Division D ...	100 yards	200 yards

* The store shall not be required to maintain a greater distance than 25 yards from a mineral or private railway worked by the occupier, provided that the door or doors of the said store be kept closed and secured when and so long as any locomotive driven by steam is within a distance of 50 yards of the store. (O. in C. No. 6c, S.R. & O. 1909, No. 753.) "Mineral or private railway" includes a tramway or incline.

† When the "protected work" is in the occupation of the licensee, and is completely screened from the store by a natural or artificial mound of earth or other suitable material not less than three feet thick at the height of the eaves of the store, the distances may be reduced by one-half (O. in C. No. 6c. 1909, No. 753).

6. Where a store is licensed for gunpowder, only gunpowder, whether or not intended for blasting, and gunpowder cartridges not containing their own means of ignition may be kept.

When any other explosive is kept, with or without gunpowder, the store must be licensed for mixed explosives.

7. Detonators must be kept effectively separated from other explosive. If a considerable quantity of detonators is required they may be kept in an annexe to the store which will be regarded as part of the store (the annexe should be of the same construction as the store and at least a few feet away from it); or in a place registered in accordance with the method first mentioned in the memorandum (the colliery office may be registered for the purpose if the gross weight of the detonators does not exceed 15 lb. and the detonators are kept in a locked box or drawer exclusively appropriated to the purpose; *see* footnote to page 174). For a few hundred detonators, however, a cupboard in the porch of the store, so

arranged that it cannot be opened unless the inner door of the store is closed, may be allowed. For weights of detonators, *see* Table at the end of the Summary.

8. When any explosive which is liable to be dangerously affected by water is kept, due precautions must be taken to exclude water from the store. This applies specially to ordinary dynamite, which is now seldom used. It is very necessary, however, to keep all explosives and detonators dry, or loss of efficiency and miss-fires will probably result.

9. The store must be well and substantially built of brick, stone or concrete, or excavated in solid rock, earth or mine refuse not liable to ignition, and so made and closed as to prevent unauthorized persons having access thereto, and to secure it from danger from without. It will be remarked that not only must the store be built of masonry or formed by excavation, but its construction must be substantial and such as to render it not liable to unlawful entry, or to danger from accident or from evilly disposed persons; accordingly, it should be provided with good doors, and all ventilators, windows, keyholes and other openings should be so closed or protected as to satisfy all reasonable requirements of security.

10. If licensed under Divisions B, C or D, and made otherwise than by excavation, the store must have attached thereto a sufficient lightning conductor.

11. The interior of the store, and the benches, shelves and fittings therein must be so constructed or so lined or covered as to prevent the exposure of any iron or steel, and the detaching of any grit, iron, steel or similar substance in such manner as to come into contact with the explosive. This provision can best be complied with by lining the store with wood or other suitable material. A wooden lining will be easier to keep clean if painted or varnished, and will last much longer if the planks are thus treated on both sides before being placed in position. The floor must be of wood or asphalt free from grit. All nails should be preferably of copper, brass or zinc; but if iron nails are used, they should be countersunk and puttied over. All exposed ironwork in the building should be efficiently covered with wood, leather or zinc, or should be thickly painted.

12. All tools and implements used in the store must be of wood, copper, brass or some soft metal or material, or be covered with some safe and suitable material.

13. The interior, benches, shelves and fittings of the store must, so far as is reasonably practicable, be kept free from grit and otherwise clean.

14. Due provision must be made by the use of suitable shoes or otherwise for preventing the introduction into the store of grit or of any exposed iron or steel. At every store there should be a visible boundary, whether formed by a step or by a vertical "footboard" (about four inches high), or otherwise, beyond which the dirty iron-nailed boots should never pass, except directly into over-boots of leather, rubber or other suitable material made without any iron; and these over-boots should in their turn never be placed outside the "clean" boundary (the word "clean" being here used in a technical sense, implying the exclusion of all grit), or be deposited where they can take up grit. Over-boots made very large (so as easily to take in the whole boot and lower part of the trousers) are more convenient than those which necessitate removing the ordinary boots, or which entail trouble and delay in putting on.

15. Due provision must be made by the use of suitable working clothes without pockets, searching, and otherwise, or by some of such means for preventing the introduction into the store of fire, lucifer matches, or any substance or article likely to cause explosion or fire, or any iron, or steel, or grit. (N.B.—The use of an artificial light of such construction, position or character as not to cause any danger of fire or explosion is permitted, e.g. an approved electric safety lamp or fixed electric lights of a type approved by the Coal Mines (Lighting) General Regulations, 1947).

This important provision can best be satisfied by requiring the storekeeper to wear a pocketless magazine suit, and forbidding other persons to enter. But

as this is not always practicable or convenient, the storekeeper should be required not only habitually to search his own pockets, but also the pockets of any other persons who may enter the store, in order to detect and remove therefrom any dangerous articles, among which may be included a pipe, as this is sometimes placed in the pocket before it has been properly extinguished.

16. No person may smoke in any part of the store.

17. A person under the age of 18 shall not be employed in or enter the store except in the presence and under the supervision of some person of the age of 21 or upwards, and a person under the age of 16 shall not be employed in the store.

18. No repairs are to be executed to or in any part of the store, except after the store has, so far as is practicable, been cleaned by the removal of all gunpowder and the thorough washing out of the store.

19. The store is to be used only for the keeping of explosive and receptacles, or tools or implements for work connected with the keeping of such explosive.

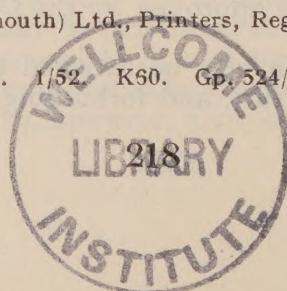
20. A warning notice to trespassers must be kept conspicuously posted up.

Weights of Detonators.

Size of Detonator.	Gross Weight per 1,000 Detonators.	Remarks.
No.	lb.	
3	3.19	
3a	3.31	
4	3.62	
5	4.23	
6	4.95	
6½	5.50	
7	7.06	
8	8.66	
9	9.76	
10	10.86	
		{ Not much used.
		{ Common sizes.
		{ Not much used.

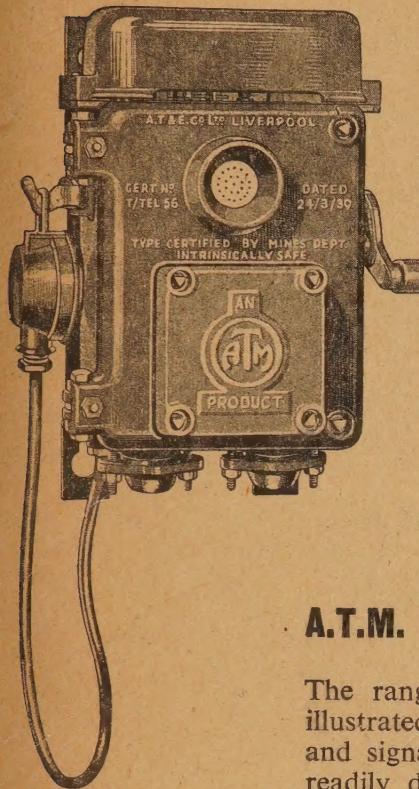
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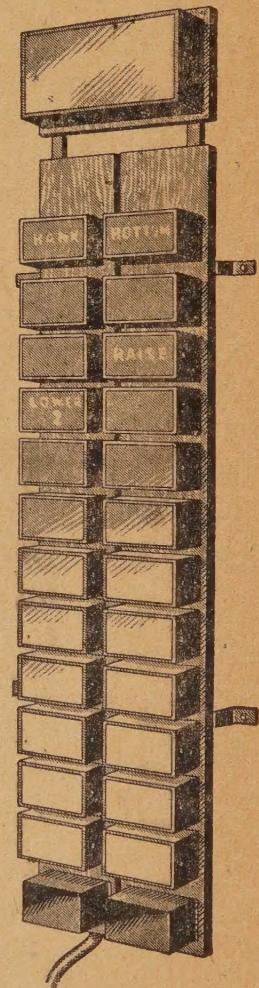
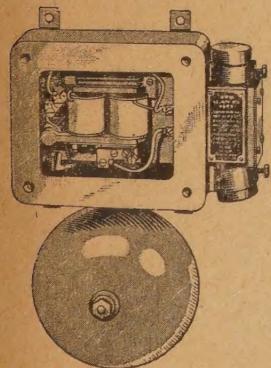
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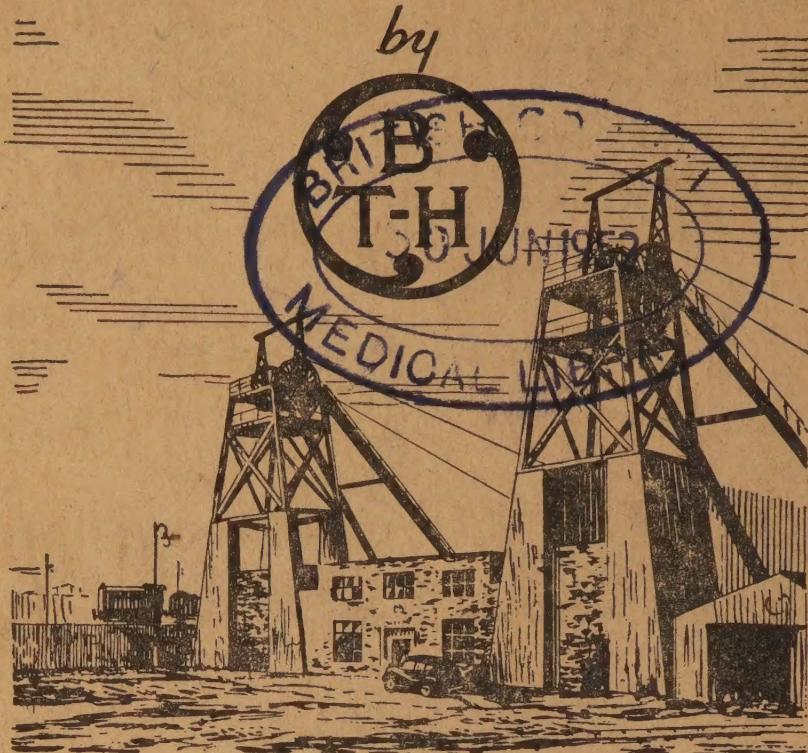
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